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The Builder.

Condition of our Towns.
Birmingham.

WE made but two promises in our last with reference to the new year; one on the subject named in the heading of the present article, and the second as to foreign parts. We proceed at once to their fulfilment. The previous volumes of the *Builder* show that we have never omitted, through illustration and description, to pay attention to progress of architecture on the Continent. Many circumstances, however, prompt us, in the present year, to attempt a more precise examination of some of those objects and subjects which are of interest to our readers; and next week we shall commence the task. On the present occasion we propose to speak of one of our own towns. All admit how useful it would be in most of our daily concerns to be able to see with other people's eyes!—whence we may conclude that, if the inhabitants of various towns could be brought to see with a stranger's eye the vital need of immediate attention to the existing ills, there would be little time lost before the necessary remedies were set in motion. In this season of comparative peace and prosperity, it behoves us to leave not a stone unturned to bring about such a state of things as would ensure us all, at least, butterfly fare, pure air and good water. Plenty of light is another necessary that we were never intended to be without; and we may hope that with light, pure air, and abundance of water for our workers, plenty of roast beef—the result of healthy labour—would follow.

We select Birmingham, in the present instance, not because it is in a more dangerous stage than Brighton, or any of its alphabetical compeers—for it is not, the Brighton people being in that perilous state in which they are unwilling to see that there is anything wrong,—but because we shall thus be able to cast into the scale now poising there, such weights as may, perchance, turn the balance.

While we write, the ratepayers are in commotion on the subject of an Improvement Bill, in favour of which it is creditable to them to find a majority. In this Bill it is proposed to borrow 200,000*l.* for the purpose of completing the sewerage, and properly paving the footways, and for preventing the increase of and providing some remedy for the great evils arising from the erection of houses in streets which are not properly laid out, drained, levelled, and macadamized. This Bill is opposed by a large body of highly respectable residents. On what grounds? Because it was discussed and decided upon by the town-council in five days, whereby they feel assured that due consideration has not been given to it. Another meeting of the burgesses has passed a resolution in favour of postponing the consideration of the Bill for twelve months on account of the peculiar arrangement in which the repayment of the proposed loan is proportioned over a period of fifty years—a debt, they urge, the present generation has no right to impose upon the next. The mode of raising the necessary funds, although a very important question, is foreign to our purpose: we confine ourselves to the aim of impressing upon all and every one concerned, the imperative necessity of immediate regard to the provision of sanitary essentials. In Birmingham, that great emporium of "unconsidered trifles," that mart of real and imitation jewellery, electro-plating, tea-trays, patent coffins, guns, percussion-caps, rifle slings, sewing-machines, "self-acting cinder-shifting ash-pans," "double-action patent vertical and imperial mangles," iron bedsteads, papier mâché elegancies and buttons, there are thirty miles of streets inhabited by the men, women and children employed in these various manufactures, without a sewer. Thirty miles of houses—we are afraid to say how many miles of homes, for there is more than one home in most of the houses—thirty miles of streets with no sewerage! With wealth flowing in from all quarters of the globe, with schools of design, scientific institutes, music unions, and other elevating influences, Brummagem has lived down its old reputation for bad taste and shams, but contentedly folds within its precincts this monster hot-bed of corruption. Birmingham, boastful in its advertising mediums of its lustres and lanterns, its adamantine burners, its ornamental coffee-mills and tea equalisers, its Britannia metal-wares, crinoline cord, photographic window-glass, elastic stockings, and steel pens; of the quality of its edibles—from the sausages (Oxford, Cambridge, and German) manufactured from the pigs at Bingley Hall, to the *patés des lichens* for public speakers,—Birmingham, set forth as so ultra artistic in its refinement, so dainty in its appetite, is no more nor less than a mighty maze of mud. Birmingham, so boastful of its boundless manufacturing resources, of its ability to make any given object, from a needle to an anchor, is a network of irregular narrow streets, laid down according to the caprice of the proprietors of the land,—up hill, down hill, in blocks projecting upon already too crowded spaces, in labyrinthine perplexity; some macadamised, some not; some paved, some not; some drained, and many others unprovided for the common decencies of life. True, there are handsome buildings in some of the most crowded localities; but the roads to any of them are surpassed by the walks about the poorest village.

This condition is not beyond remedy. When the railway companies brought their magic-working lines into the heart of the town, no less than 2,000 of the poorest, dirtiest, most closely wedged together houses, were pulled down to afford the necessary area. And surely the voice and power of a people must be as potent as those of a company! It is only requisite to say we have learnt, out of the nineteenth century teaching, that, if we do not want to see our little ones sicken and die at the fearful ratio the returns of the registrar show us they do,—if we do not want fever, with its haggard and hollow eyes, its wasting, wailing, and anguish of heart, to be our constant guest, we must have four things,—light, which we and our children need as much as plants do, to be strong and full grown;—drainage, that the air we breathe may be uncontaminated with fœtid odours;—water laid on to every house, that our large families may not be obliged, on account of the great labour of bringing it from a distance by pailfuls, to use it over and over again for different purposes; and ventilation, that by a proper disposition of our streets, and the abolition of closed courts, we may be assured, when we open our windows, of fresh air from the green country beyond the blackened neighbourhood of the town. Again, in the few instances where there exist open spaces, these should be jealously preserved. The corporation or the public should purchase them at any cost. They should be looked upon as air reservoirs. As an instance at hand, we observed in New-street—the handsomest commercial street in the town—immediately in front, too, of the most imposing building in the street—Hyam's outfitting warehouse, a space of the rare and very desirable kind in question. It is a quadrangle, formed by the street lines, on the south side of New-street and west side of Stephenson-place, the back premises of the railway station hotel, and the boundary of King Edward's Grammar School. The centre of Stephenson-place, which is but a very poor approach to the immense central station, is incommoded by a statue of Attwood; and this quadrangle, one side of which, be it remembered, is formed by the line of the place, and is still unoccupied by houses, is now to let on building lease. If this space could be preserved intact, except on the southernmost side—where a handsome pile of buildings might with propriety be erected; and the statue of Attwood, placed in the midst of the quadrangle thus retained, several great points would be gained. First, there would be, so to speak, the air reservoir secured; then a more suitable site for the statue, now much in the way of the traffic to the railway. Further, the approach to the station and contiguous hotel could be widened to suitable dimensions; and King Edward's Grammar School, designed by Barry, instead of being overshadowed and overcrowded, would enjoy a proper circulation of air, and possess better points of view. To carry this suggestion into effect, there is no pulling down required: merely prevention of erections on a spot pecuniarily valuable to its proprietors on account of its contiguity to the railway and frontage to the best street, but absolutely priceless to the residents in a sanitary sense; and to the authorities as an opportunity of improving the appearance of the town. We know that the interests of a town are made up of the varied interests of private individuals, which are, and must be, often opposed to each other; but the commercial and manufacturing greatness being composed of the same materials in the same manner, it is proved that a beneficial result to the many is not impossible of attainment. We are not pleading for a

Trafalgar-square, with fountains, or for a picturesque promenade with linden trees, as in most of the German towns; but simply for a ventricle for the heart of Birmingham.

New-street opens into High-street,—with a wide and safe curve? No. At this central point of traffic the road narrows into a neck. A few tottering houses taken down, and first-class substitutes for them set back upon their back-yards, would make one of the much required improvements of this kind we observed in various places; —the acute triangle formed by the junction of Dale-end, Bull-street, and High-street, and the narrow inlet from the Bull-ring into Moore-street, to wit.

The covered market is justly pointed out as one of the satisfactory features of Birmingham. It is commodious and even vast, but has not kept pace with the ever increasing population: on Saturday nights it is literally crammed, and overflows into the Bull-ring. It is, moreover, badly apportioned. The stalls for fish, fruit, potato parings, meat, shoes, confectionery, and hardwares, are indiscriminately mixed: thus it sometimes comes to pass that a purchaser occasionally finds the beard of an oyster fringing his orange, sawdust or suet sprinkled over his peaches. To set apart the various alleys to separate trades would be to approach perfection; and as the wealth of this great town seems overflowing here, in the well-stocked stalls, the thickly clustered buyers, the jewels, even—it is whispered—diamonds, worn by one of the fair and industrious "*Dames des Halles*," this is a height quite worth attaining.

In glancing at a view of the town made in 1732, we note the wording of its title: "Birmingham, a market town in the county of Warwick, which, by the art and industry of its inhabitants, has for some years past been rendered famous all over the world, for the rare choice, and invention of all sorts of wares and curiosities in iron, steel, brass, &c., admired as well for their cheapness as their peculiar beauty of workmanship." The paving of the streets must belong to this period now a century and a quarter gone. The "petrified kidneys," or oblong pebbles imbedded in some relief in the causeways, streets, and alleys alike, might have been endurable in the days of high heels and sedan chairs; but they are torture to the pedestrian of the present. In rain or shine, in wind or snow, the slippery, toilsome footing afforded by this old-world paving, must be a serious addition to the fatigue of the myriads of workers who have to traverse it in their way to and from their homes. We state the inconvenience to the workers first, because we are not sure but that the mincing gait it ensures, may be highly favourable to the display of the Magenta petticoats, in which case our fair readers would be to a vote against us; and, secondly, because we would deprecate any opposition to the laying down of good, smooth, wide pavements, on the ground that they were for the convenience of the rich and not the poor. The rich may ride and drive: the poor must walk: therefore, all improvements in the thoroughfares will be more enjoyed by the latter. Nor would we allude to such distinctions had not the conviction been forcibly impressed on us, in our experience in matters of parochial improvement, that a stanch opposition not unfrequently emanates from those intended to be most benefited; not so often from those whose property is likely to be affected by any change, as from those whose inconsistent resistance is expressed in the meaningless phrase that they are "not going to be trodden upon."

Birmingham, being the head quarters for glass manufacture, it is difficult to account for the small panes in the Townhall windows: they are a great blemish. In the interior we were dismayed at the poverty of the decorations, notwithstanding we saw it at its best, in the full blaze of the volunteer ball. The sun-burners with which it is illuminated cast a bright light below, but left the ceiling—always a great feature—in obscurity. We presume that the short-comings in the ventilation, the cutting draughts where the cold is not stagnant, are already recognized; as, by way of assurance and recommendation to the prospective visitors, the committee printed the following information:—"The hall will be thoroughly ventilated and warm air admitted two days previous to the ball." The exterior effect of the building is somewhat marred by the incomplete stage of the Midland Institute building. The back premises abutting on this unoccupied space are placarded up to the chimney tops. The completion of this scheme, and that affecting the space so judiciously opened out in the rear of the Townhall, form another of the improvements needful.

In contrast to the Townhall we hear of a music-hall 10 feet longer and 20 feet wider, supported by the patronage of mechanics to such a remunerative extent, that the proprietor is enabled to give to chosen institutions, such as the Queen's Hospital, the railway guards, engine drivers, or glass makers' societies, "benefits" to the annual amount of 400*l*. Thither we proceed. We find, built in connection with a public-house, that is as handsome as an Italian palace, an immense hall, half as large again as Canterbury Hall, with a stage at one end, over which is inscribed the appropriate motto, "Be merry and wise." Here a superior class of concerts is given and ballets are performed before an audience of 2,500 persons. This assembly is seated before rows of tables, on which can be conveniently deposited the vessels containing the beverages of which all partake, and the pipes which, sooner or later, the greater portion of the company smoke. This class of entertainment, where the eye, the ear, and the appetite are gratified at the same time, is appreciated by the swarthy, sinewy men, whose trades entail upon some the necessity of working stripped to their waists before blinding furnaces the live-long day; upon others, of spending their working hours amid the din and crash of machinery; and upon all, of steady continuous application and labour. We learn that this music-hall was built by Mr. Holder, in 1846, to accommodate 200 persons; but that the extent of favour with which the recreations he provided were received authorized him to make the improvements and additions which render it now capable of accommodating 2,500. In this success we have a clue to the undirected taste of our mechanic population; and find it to consist in a love of elegance and music, accompanied by——refreshment.

The Music Hall *par excellence* is remarkable as a highly ornate Gothic building, in which iron is very freely brought into the composition. The roof is of iron; so are the tiers of galleries; and so is the abundance of tracery with which the interior generally is decorated. Of this, however, and other buildings in Birmingham, mention has been often made in our pages. Polychromy is boldly taken into account, with a result not auguring ill of its future development.

The church-building and restoration movement does not appear to be in great favour. A more stirring vitality must have prevailed in this matter about the time that the view to which we have alluded was taken, 1732, as the greater proportion of churches must be assigned to that period. The front of one of these, St. Philip's, is in course of refacement; the very soft stone having seriously crumbled away. The large windows, 6 or 7 feet wide, which, although not beautiful, were characteristic of the days that modern writers dwell upon as an Augustan age,—the days which cherished Addison, Swift, Steele, Gay, and Pope,—are being removed. Their small oblong panes, whose framework at least took away the sense of bareness, are replaced with plates of glass arranged in intersecting circles. Another church, that of St. Martin, a little later in its style, has had a new tower and spire affixed to it, which are bad imitations of those of St. Mary's, Oxford.

A very creditable edifice has, however, been recently completed in Ryland-street, dedicated to St. Barnabas, in the Early Decorated style, and another new church is now in course of erection in Broad-street, on a very unusual site. It is built on an archway that spans the canal, the waters of which will be ever flowing beneath. The materials employed are Bath stone, red sandstone, cement, and bricks. And the Jews' synagogue is a handsome new building in the Italian style.

We would not depreciate efforts that have been successfully made to redeem the utter ugliness of this great manufacturing centre. There are some quarters of it where a certain prim, quiet snugness reigns, that the recollection retains with pleasure—the lawyers' street of Waterloo, sedate and tranquil; the old square of doctors' houses, in the Queen Anne style, at any of whose portals we should not be surprised to see the physician of the last century, with powdered wig and clouded cane; or Upper Temple-street, with its palatial pile of "offices;" Odd Fellows' Hall; Athenæum; and the Temperance Hall (illustrated in these pages).

Nor must we omit mention of the peculiar appearance of the colossal manufactories; Winfield's, remarkable for covering some acres of space, with an architectural effect akin to that presented by our bonded warehouses in the London Docks; and Upfield's iron bedstead and patent axle factory, recently rebuilt, the specification and planning of which are introduced by Professor Donaldson in his work on Specifications.

Modern days have given the town a fine statue of Sir Robert Peel, raised on a basis of red and white granite, guarded by bronze and gold railings, and lit up at night by gilded lamps. A column to Nelson, now historical for the fierce use the rioters made of its railings, ornaments the Bull-ring; and we have already mentioned a third statue, that of Attwood.

Aston Park is a step in the right direction; although, being charged with an entrance-fee, it is not of the practical use it should be. Children, sent out for air and exercise, are not often provided with the means of paying even the smallest toll; and the beneficial results of public parks must be looked for in the improved health of the rising generation, rather than in that of the present. There is also Calthorpe Park, which, if its limited area, thirty acres, could be increased to the relative requirements of so vast a population, would be a greater boon than it is.

Birmingham Heath has disappeared, save one corner—facetiously termed the Cape of Good Hope—that is to say, it is occupied by the workhouse, the lunatic asylum, the gaol, and the cemetery. Soho Park is also a mockery—Vulcan's sable assistants here holding, midst flame and smoke, their continual court.

In quitting Birmingham we take away a deep sense of the misery of living in such dense districts as the Old Inkleys, or in Digbeth—an old-fashioned street climbing up a hill, or rather slipping down one, whose lower stages are overflowed in floods, and lie in great black pools till the waters subside; and a vivid picture of the scorched country beyond, in the direction of Wolverhampton, which, although burnished with furnaces, would be dark, but for the fourteen miles of gas-light which eke out the nearly expunged daylight.

We hope that the Bill now about to be brought into operation will include as much alteration of these ills as our improved means and appliances can insure; and that before the stunted grass makes one more effort to tint the cinder-fields, Birmingham will be a light unto the nations.

THE GURNEY MEMORIAL.—The committee have received tenders for the erection of a fountain in the Broadway, Stratford, as a fitting memorial to the late Mr. Samuel Gurney. The tender of Messrs. Tregellis & Taylor was accepted for erecting an obelisk, 40 feet high, with water supply complete, at a cost of 400*l*.

TERMINATION OF THE STRIKE IN LEEDS.

RULES AGREED ON.

Six months ago, about the beginning of July, we reported a strike among the masons of Leeds. At a meeting of the men it was agreed to present a memorial to the master builders, asking for several important concessions. These concessions were not granted by the masters, and the men struck. The most important of the points fought for were those embodied in rules Nos. I., VI., VII., and VIII., of the men's first code of rules, viz.:—

I. That the hours of labour commence on Monday morning at seven o'clock, and close at half-past five in the evening.

VI. That subcontracting and piecework be abolished.

VII. That overtime be not allowed except in cases of emergency; and not to work more than two hours for a quarter of a day; and to be allowed time and a half for all time worked after the first quarter, and double time for Sundays.

VIII. In yards or jobs, the nature and extent of which render the demand reasonable, sheds shall be erected. The society, in conjunction with the masters, to have a voice in directing, where a dispute exists relative to the erection of sheds. Any employer not acting in accordance with this rule, to pay half the time his men lose in consequence of wet weather.

A meeting of the masters was held on September 21, when the following resolution was adopted:—

"We, the undersigned employers of masons and operative masons, for our respective bodies, agree to refer the matters in dispute contained in the twelve printed rules issued by the said operatives, to arbitration; each party selecting two gentlemen unconnected with the trade, who shall choose an umpire, and the decision of such arbitration shall be binding on both parties.

Signed, on behalf of the Leeds Branch of the West Riding Builders' Association,

JOHN WOOD, Chairman, &c.

Signed, on behalf of the operative masons of Leeds,

THOMAS FRANCE, &c.

On the Monday following the issue of this resolution the men resumed work, some of the masters paying for the hour between six and seven on Monday morning, whilst some refused to pay for that hour's work. On October 23, a deputation of the men again waited on the masters, and received from them the following resolution:—

"That six o'clock be the hour for commencing work on Monday morning as usual, with the understanding that if the arbitrators decide for seven o'clock to be the hour, the men shall be paid for the hours wrought before seven o'clock on Monday previous to the arbitration."

The strike still continued, and ultimately arbitrators were appointed, who were, in accordance with the before-quoted resolution, unconnected with the trade; and Mr. Robert Barr, clerk to the magistrates, was chosen umpire.

These gentlemen, after several meetings, in which all the twelve rules of the masons were fully discussed, agreed on a slightly amended form of the original rules. The dispute, therefore, was at an end, and a meeting of the operatives was held in the Civil Court of the Leeds Townhall on Saturday evening, December 22nd, to hear the amended rules read. The meeting was a numerous one, under the presidency of the Rev. E. Monro, who opened the proceedings by a powerful, sympathizing address. He referred to the fact, that this dispute affected the happiness and prosperity of 3,000 workmen and a large number of masters; and now this disastrous quarrel, which was of so long standing, had been settled in the most amicable manner in a short time. The circumstance was a practical instance of the wisdom of arbitration, whereby the evil of strikes, which he considered a public evil, might be obviated. Both workmen and masters had public duties as individuals in the community of which they were members, and a resort to strikes, which might be prevented by arbitration, was a neglect of that public duty.

The first six rules ultimately adopted by the arbitrators and agreed to were explained by Mr. Lishman, and the last six by Mr. Hole.

On Sunday, the 23rd, there was a large meeting in front of the Townhall of the workmen who had struck, whence they proceeded in a body to Lady-lane Chapel, a sermon being there preached to them by the Rev. S. Davies.

In consequence of the Leeds Mechanics' Institute having been used as the place of meeting for the arbitrators, the masons and other members of the building trade have determined to present the sum of 100*l.* to the building fund of that institution, as a thank-offering for the great good of the termination of the strike.

It is to be hoped that the Council of Conciliation now organized will effectually prevent any future strike.

We subjoin the twelve rules finally adopted, from which our readers will be able to judge of the modifications of the rules proposed as quoted above.

"I.—That the hours of labour commence on Monday morning at seven o'clock, and close at half-past five in the evening; and that on the other five days the hours be from six o'clock in the morning to half-past five in the evening, except Saturday, to close at four o'clock throughout the year.

II.—That during the winter months, namely, twelve weeks from the first Monday after the 9th of November, to commence work at daylight and close at dark; in no case to work later than half-past five in the evening. The summer months to be the rest of the year.

III.—That nine o'clock be starting time for three-quarters of a day during the summer months, and half-past nine during the winter months; and one o'clock for half a day's work throughout the year.

IV.—That one hour be allowed for dinner throughout the year, and half an hour for breakfast during the summer months.

V.—That the present rate of wages shall continue to be paid (4s. 6d. per day), subject to a reduction of 6d. per day during the twelve weeks in winter, in which work commences at daylight and ceases at dark, as provided in Rule II.

VI.—That the practice of sub-contracting be discontinued, except the sub-letting of the entire mason's work to a master mason by a person contracting for the several different works in connection with the same building. In cases where piecework is adopted, the scale of prices shall be such as to secure the workman at least the minimum wages he is in the habit of receiving.

VII.—That overtime be not allowed, except in case of emergency, and to be allowed time and half for all time worked after the first quarter, and double time for Sundays.

VIII.—In yards or jobs, the nature or extent of which renders the demand reasonable, proper sheds shall be erected. Any employer not acting in accordance with this rule, to pay for half the time his men lose in consequence of the non-erection of sheds. In cases where the master refuses to comply with the request of the men employed, to erect a shed, the men may appeal to the Council of Conciliation as provided by Rule XI., but shall continue to work until the decision of the Council be made.

IX.—Walking-time, in the morning, to be allowed to all jobs outside one mile and a half from the Wellington station, at the rate of three miles per hour; and any employer having work above three miles from the boundary, to pay 2s. per week for lodgings. In cases where lodgings are paid, to work the same hours as in the town (except Monday), when walking-time to be allowed as above. In cases where men are sent by railway, to have fare and time allowed going and returning.

X.—Where wages are paid on the Saturday, to commence paying at four o'clock every week; and men, working beyond the boundary, to be paid on the jobs, or be allowed to leave work to reach their respective offices at four o'clock; or, should the wages be paid on Friday (which is preferable), at half-past five.

XI.—That a permanent Council of Conciliation, consisting of three masters and three men, be appointed by each body, annually, who shall have power to appoint an umpire, and to whom all disputed questions (save and except the rate of wages) shall be referred. The decision of the Council or umpire to be final. The meetings of the Council shall be on the first Monday evening of every calendar month; or they may be convened at any time on a week's notice, by the requisition (in writing) of not less than two masters or seven operative masons.

XII.—That these rules be equally binding on both masters and men; and should any alteration be required, six calendar months' notice shall be given by either party; such notice to expire between the 1st of May and the 1st of August next ensuing."

ON SOME MALVERSE REACTIONS OCCURRING IN OIL PAINT COMPOSITIONS.

Preliminary Survey.

A DETERIORATION of some kind, it is alleged, has, within the last few years, taken place in oil paint work, or in the materials used in the composition of oil paints. This deterioration is attributed popularly to some modernly-created defects in the linseed oil entering into such compositions; and these defects are conjectured to originate in some occult and recently contrived system of adulteration of the oil.

The fact of there having latterly existed some serious defects in our paints is indisputable; and the laying these defects to the charge of the oil has been so generally done as to have led, in attempts to trace their exact cause, to an examination not only of the oil, but also of the original seed itself. The recognition of the existence of some unexplained evil has been so general, and the probability that its origin might lie, in part at least, in direction of the original seed has been so strong, that several of the linseed oil and seed merchants, in their annual review of last year, especially, adverted to this subject. They touched upon it not as a chemical, but purely as a mercantile question; and, chiefly so, as affecting the linseed trade of importation. Translated from the conventional phraseology usually resorted to in such documents, the purport of their allusions (admitting that there had crept into the market seeds of a spurious character) was, that the remedy for that evil lay in the hands of the importers themselves, who had but to combine against buying the spurious mixture to ensure an adequate supply of the genuine seed. The further question of any treatment or adulteration of the oil itself, after its expression from the seed, lay not within their special province, though it was through the alleged imperfections in the oil that their attention had been directed to the condition of the seed. It is, however, upon more direct evidence than this significant if somewhat retrograde one, that the reality of the existence of some abnormal condition in our paint work or in our paint materials depends. It is unquestionable that deterioration of some kind, making their appearances in defective qualities of our paint work, or in inadvertent and wrong effects in it, still exist;—that the adulteratings of the original seed, or of its oil, or of both, whether such adulterations be of the incidental or the culpative kind, whether occurring in the natural order of things or done wilfully, and whether accounting for all or for only a part of what is experienced, are still, as it would appear, going on, and continue to inflict their evils on the consumer and the operative painter.

The *Builder* touched upon this subject about a year ago, being led to it, at that time, more immediately by a correspondent's inquiry, similar in purport to another which appears in its last impression. The subject is recurred to, as well out of respect to such inquiries as these, as in deference to a more extended feeling and requirement on this matter, which are known to be growing, to have become urgent, and very generally to prevail. Oil paint work now-a-days seems, by all accounts, to go wrong so frequently, and to do so—not locally or occasionally only, as every now and then it has always done,—but so generally, that some corresponding but unseen cause—some general, and not merely isolated or accidental cause—seems to be indicated as operating to produce results that are as injurious as they are troublesome.

It is, however, yet open to some question that it is to the linseed oil only, or, in fact, at all, we should attribute these malverse reactions and effects in paint work that are now so commonly met with. The whole question of the cause of these is both an interesting and an important one. Should it be proved that they are due, even only partially, to defects in the oil; then, to determine what these are, and what their origin, and to devise remedies for them, would alone, among the many other complicated questions the whole subject involves, be well worthy the time and trouble such a solution demands.

It can scarcely be that the detecting or recognition of these mishaps in painting can be attributed solely to some increased habit of more accurate observation on the part of either the employer or of the artizan; that the exercise of a more fastidious taste over art effects, in ordinary or decorative oil paint work, has suddenly been acquired, and thus shows itself in action. Participating in the rapid progress of art and of artistic skill that in all other directions marks the present epoch, this branch, too, has no doubt made a corresponding advance; but it is equally probable that the operators of the past decade were as well qualified to judge of the texture of a paint, to criticise its fresh and its finished effects, to detect any imperfections or malverse indications of any kind in it, either on its passing through or after having left their hands, as may be the operators of the present day. The pre-Exhibition workman may be supposed to have been as well able to discover effects in his work that had not been intended — decolorations, sweatings, pimplings, disturbing changes, in degrees of gloss and of flat, &c., &c., as are they who meet with so much of all this at the present time, and who are so loud, and apparently with every reason for being so, in their complaints.

The exercise of a superior taste or power of observation, and the requirement such an exercise must naturally lead to for work of a higher cast than that previously supplied—even if a so much keener discernment have really sprung into existence—can scarcely account for so much that is faulty now. Neither dare we assume that a talent and skill of this kind have degenerated within this period, and that, consequently, the work is now carelessly or improperly done and thence is inevitably replete with faults. The greater probability is, that the defects now alleged to exist are correctly seen and estimated; and that their cause, or combination of causes, is some special and recently created one, the real character and origin of which we must seek for in some other direction.

Whether or not it be that the effects, and the causes leading to them, which we here refer to, have always hitherto existed, it is certainly only within the last few years that they have been bruited notoriously, and that the kind of complaints the correspondents of the *Builder* and others make have more especially reached us. In casting about in search of an explanation of facts whose reality is indisputable, one cannot find an adequate one, in the occurrence, within this period of any unusual meteorological phenomena, at all calculated to have given rise to any correspondingly unusual reactions upon, or among, oil-paint compositions. The last three or four years—barring only the one just ended—have given us

seasons so favourable for painting as to stand almost unexampled, in this respect, in the history of our fickle climate. We have had neither inordinate developments of ozonic agencies to aid in bleaching or disintegrating our paint; nor inordinate prevalences of sun-light, or of hygrometric moisture in the air (excepting always in this latter respect those of the past water-loving year) to disfigure or otherwise injuriously to affect it within the period of the occurrence of these special actions and appearances.

Can it be that the transition—which, within the last ten years or so, has been gradually accomplished—from the practice of using home-made driers to that of employing the wholesale-manufactured compounds of this class, has carried with it some deteriorating action upon the paints such compounds are mixed with? In the olden time, each operative was in the habit of concocting his own *alkahests* of this stamp: now he, for the most part, buys and uses those that are ready made to his hands. At every period the employment of driers has been, to a greater or less extent, an injurious element in the painter's work. Their peculiar chemical action was never, till quite recently, either properly understood or administered. Can it be that the composition of these wholesale manufactured driers is different in some respect, and injuriously so, from that resorted to by the older operators? or that the painter, because of their comparative cheapness, and the facilities of their application, now adds these ready-made driers to his paints in some more than usually undue or injurious proportions?

Has the cupidity of the day grown at last so outrageous and barefaced that that which, in past times, has been done but rarely, and then with all due caution,—viz., the culpative adulterating of both the raw and the boiled oil,—is now carried on to so much greater an extent as to have become an endemic disease, and utterly unbearable?

Has some important change (the fruits of new methods of manufacture, or of the fierce trade competitions that everywhere predominate, and bring in their train all the host of defective manufactures and of adulterated products) supervened in the chemical composition, and, consequently, in the kind of their reactions with the oil, of the pigments themselves? Are we to fix all blame upon the oil alone, and not to take into consideration the possible implication of the pigments, or of some one or more of these that may be the more generally employed? Are we to dismiss altogether a consideration of the possible agency of the complex mixtures of changeable elements, of which so many of our modern pigments consist? And is the turpentine and its many possible conditions, to be also exonerated from all complicity in any malverse agency or reactions?

Will the circumstance, already referred to, of the occurrence of some important alteration on the character of the linseed that now finds its way into England, give us any satisfactory clue to a solution of these difficulties?

As already said, the seed merchants themselves look to the quality, and, consequently, value of the *seed*,—not to the chemical question of the quality or purity of its oil. But it has been through the medium of the chemical character of the oil—first exhibiting itself, as it is stated, in these malverse reactions in paints, and also in varnishes,—that, in following up the inquiry, attention has been called to the quality of the seed; and to the fact elicited, that linseed now is not always so good as it formerly was,—in other words, that now it is frequently, and to a great extent adulterated with spurious seeds.

Do these spurious seeds yield some products, or do they themselves contain oils that, when mixed, on crushing with the genuine linseed oil, impart to it these alleged bad qualities? And if a paint-deteriorating cause from this source be proved to exist, are its effects of sufficient amount to explain all, or only some part, of the adverse phenomena, the solution of the origin of which is now sought for?

It is among phenomena and evidences of the mixed and complicated character here glanced over that the experimentalist has to labour in his attempt to solve this question of the real meaning of these malverse reactions in paints. His elements, at first view of them, appear to be but a chaotic mass of possibly questionable facts and of inextricably confused phenomena. He has to find his way through an unknown section of an almost wholly unexplored country,—to cut and clear his pathway through "tangled junipers, beds of reeds," and other almost impassable obstacles; aided in his work only by his conviction that there lies beyond all a fair land whose possession will amply repay him in the end.

It is scarcely requisite to remind the readers of the *Builder* of that pregnant tale told of our merry monarch and his Fellows of the Royal Society. The tale of the fish and the bowl full of water is as equally applicable in its moral to the very inquiry now in hand as it was to any objects of research of existing in the reign of the second Charles. Enough has probably been said already to establish, as a real fact—as a palpable phenomenon and an unquestionable existence—this alleged one of the existence of some modern and unusual defect in our paints or paintings.

It is probably equally needless with the readers of the *Builder* to advert to that safe and wise rule in inductive research which teaches the inquirer or experimentalist that when he shall have discovered enough satisfactorily to account for any special phenomena he is examining into, it becomes both needless and impolitic—for the immediate and special objects alone—to extend his researches beyond such point of discovery.

If, therefore, in one or other or in a combination of the possible causes that have just been enumerated, there should, on a detailed examination of each, be found enough to account for these abnormal conditions of our paint-work, the inquiry now on hand will be finished; but, if not found to be sufficient, then this research would need to be further extended.

A natural as well as a convenient order of conducting such a detailed inquiry is to begin with an examination of the seed and its oil products, as these are to be now met with in the English market; and this, it is intended, shall form the topic of the ensuing chapter.

CHRISTOPHER BINKS.

THE FAILURE OF RESERVOIRS.

THE following observations on the reservoir of the Adelaide waterworks are from a South Australian paper:—

"It seems this great national work is doomed to another delay before it can be pronounced to be perfect; for now, when the eyes of the citizens are charmed by the abundant supply of pipes and the vigour with which the work of laying them is being carried on to supply a pure, clear, and refreshing draught, and all are in hopes that, before the season of hot winds set in, every house will be supplied with somewhat of a remedy; lo! it is discovered that the reservoir is 'leaky.' The rumour has been in circulation in the city for some days to that effect; and, to ascertain its truth, we instructed one of our staff to visit the place. It appears from his report that the leakage has been going on for some days. To explain the nature of the leakage we must inform our readers that, in the centre of the embankment, through its entire length round the reservoir, a solid wall or puddle trench of clay was made at its commencement, having a natural bed of clay to rest upon; thus rendering it impervious from top to bottom. When the work had proceeded for a considerable length the character of the bed changed to a stony or gravel concrete; and Mr. Hamilton, the engineer, instead of ordering the removal of this stuff and following the clay for his foundation, ordered the puddling trench to be continued *over* the concrete. The consequence now is, although the reservoir is not half full, the water is forced through this bed of concrete, and is escaping in several places. To test the real cause of the defect several men are now employed cutting right through the puddled trench, and are now down to the bottom on to the concrete. The trench is found to be quite stanch from the foundation to the top, but the concrete is completely saturated with water, showing clearly where the defect is."

This extract proves that water is as difficult to manage in Australia as in any other part of the world. If there be truth in the maxim that "the arch never sleeps," there is equal truth in the remark that "water never sleeps." Impounded water can find out the weakest point in an engineer's work in the New world as well as in the Old world, and we have no doubt but that our remarks will have time to reach Adelaide before the embankment at the waterworks has been made water-tight. Reservoir-embankment failures have taken place in England within the last twenty years on a large scale. Some have given way under pressure of water, as at Holmforth and Birmingham, where devastation, in both cases, and serious loss of life in the Holmforth case followed. At Manchester and at Liverpool the embankment failures are more of the character of this one, as reported from Adelaide—a leaking subsoil below a puddle trench. A leaking subsoil is, of all things connected with reservoir-making, the most difficult to stop. An absolute cure may be impossible, and in such case the engineer will act wisely if he accepts the natural conditions, and brings them into account with his plan. A leaking subsoil, such as the one described at the Adelaide waterworks, may be made available as a natural filter, if the water is intercepted at its issuing below the embankment, and is there turned into the conduit and taken on for supply.

It is impossible to do more than make the suggestion to our Australian readers; but we are sure it is a suggestion worth consideration.

Reservoir embankments may be commenced where it is not possible to sink a puddle-trench down to a water-tight subsoil. There may also be springs of water rising in the gravel, shale, or rock, on a reservoir-embankment site; in which case the engineer will make a mistake if he attempt to close such down by attempting to cover with puddle or with any other material. The only safe mode of dealing with spring-water, in such cases, is to provide free means for the water to rise and escape. Springs of water in the puddle-trench and beneath the seat of the embankment at Holmforth caused the destruction of that work, and brought about the ruin and loss of life which took place.

If nature has rendered it impossible for an engineer to make an absolutely water-tight embankment, on some particular site, and he cannot remove his work to a better point, he ought to study how best and most cheaply he can make an embankment safe which *will leak*; and then to render the water escaping at such leaks available. An engineer will, if possible, avoid a porous site for a waterworks embankment; but when he finds the difficulty upon his hands, it is his duty to accept nature as she is, and make the best arrangements under all the conditions and requirements of site and works. A leaky embankment may be leaky from several causes. If the outlet culverts and valves have been placed in the made embankment, and these give way and leak, there may be great danger to the stability of the entire work. If the leak is through the material of the embankment at any point, there is great danger. Where forms of leaking proceed from bad engineering, either ignorance or defective workmanship is involved, or both; and the engineer is blamable. But, if the leak be through the subsoil, and this be rock, shale, or gravel, there may be serious loss of water, and no actual blame to the engineer, nor danger to the works. This appears to be the case at the new embankment of the Adelaide Waterworks. We do not say that leakage in any form is safe, and most certainly it never can be desirable. But we do say that there may be leakage at a reservoir embankment which is not dangerous, and which an engineer will do wisely to accept; and, in place of spending large sums of money to no useful purpose, in vainly trying to stop that which will not allow of being stopped, he will strive to turn the leaking water to a useful purpose. Let our Adelaide engineer see if this cannot be accomplished with his case.

ON THE ARRANGEMENT OF CHURCHES.*

WHEN I first offered to read a paper on the arrangement of churches, I was not aware that it would be so immediately preceded by one on the same subject at the Royal Institute. The admirable and learned paper by Mr. Mackenzie Walcott, to which I allude, should be read by all who were not fortunate enough to hear it: it so completely exhausts one branch of the subject, that it is fortunate I had not proposed to myself to follow the same line. Our object being chiefly discussion, I felt that suggestive remarks rather than a collection of facts would be more likely to tend to this result. In order, too, to meet the wish generally expressed at the commencement of the session, "that our papers should be short and conversational," I have endeavoured to be as concise as possible, and thus to leave time for subsequent conversation on the subject, and to afford an opportunity for the interchange of original thought and suggestion.

My object, then, in the short time before us, will be to take a practical, common-sense view of this deeply-interesting question, both with reference to the ritual of the Church of England, as it now exists, as also to the peculiar exigencies and requirements of our own times, and the means at our command for meeting them in the most natural and straightforward and therefore in the best manner. In following out this plan time would fail me (even if the task had not been rendered superfluous by Mr. Walcott's paper) to enter into any detailed description of Mediæval or earlier church arrangements, or even to allude to them except so far as I find it necessary to do so in illustration or support of my views. If my remarks, therefore, fail to take the interesting line of archæological research which might have been expected, it is not that I at all underrate the high importance of this line of study in all its

* Read, at a meeting of the Architectural Association, by Mr. Blomfield, as noticed in our last.

branches, but that I take it for granted every one who aspires to the honour of being a church architect habitually pays especial attention to it; and we are therefore at liberty this evening to devote ourselves to the present and future, rather than to the past. Thus also I have avoided a very interesting branch of the subject, which was open to me,—the symbolism of church arrangements,—not because I slight the study of it, but because I think it involves questions scarcely practical enough for our evening's discussion; and because I think that a system of mystic symbolism (beyond that which explains itself at once by familiar use, or as distinctly scriptural), when it is merely based on human fancy and ingenuity, is, in this age, as much a toy and dead letter as the science of heraldry is amongst the sciences.

What I propose to consider then, is, first, the influence which our ritual, as it at present exists, ought to have on the architectural features and character of our churches; in what manner it ought, in other words, to make itself felt in the building; and whether we were in the habit of paying sufficient attention to this point.

Secondly, the customs, wants, and requirements of modern congregations as compared to those in former ages of the church. Whether these customs, wants, and requirements are to be ignored and slighted, or whether they ought to be met; and if so, whether we ought boldly to acknowledge the means we employ, and make the most of them; or to conceal them, and, as far as we can, apparently dispense with them altogether, because they do not fall in with preconceived notions as to what is "ecclesiastical." It will be observed that I place first the question of the influence our ritual ought to exercise on church architecture; because, if that can be determined, we may, I suppose, safely say that what has nothing to do with our ritual is not absolutely necessary to give due expression to a church; or, in other words, is not intrinsically ecclesiastical.

The first reformed English liturgy was produced in 1549, and was followed, in 1552, by a second, which is nearly identical with our present Book of Common Prayer. Since that time it has undergone several authorized examinations, and some few changes of importance have been made in consequence; but in all essential points it continues the same. Thus it will be seen that, precisely at the time of the great change in our church services, the knowledge and practice of the true principles of architecture had passed through their last phase and died out, so that the only object of the Reformers naturally was to obliterate, as far as possible, all traces of the Romish rites and ceremonies in their churches, without any thought of what might be preserved or adapted as expressive of the new liturgy. Since that time church building has gone through many curious changes, and remained for a long period at a very low ebb; and, although no one can doubt that we are in the right road now, how few churches have as yet been built that can at all bear comparison, in point of interest and a certain instinctive sense of complete fitness, even with the plainest churches of the best Mediæval periods? Let us consider what is the cause of this.

When we hear a new church discussed, the points usually touched upon are the accommodation, the cost, and the quality of the design. We hear, perhaps, that sittings are provided for 800 or 1,000 persons, and that it cost so much,—very cheap or very expensive, as the case may be; then we hear the particular style adopted, the height and treatment of the roof, the richness of the decoration, and the originality (if there be any) of some part of the design, with numerous other details; but we seldom (I think I may almost say never) hear a church commended because the building itself, independently of its furniture, gives expression to every part and detail of our services. I do not mean broadly to assert that none of our modern churches do give such expression (though, as a rule, they certainly do not), but I mean to say that when such an exceptional church is met with, people do not appear really to know why they like it: they think it original and clever, but they cannot exactly say why it interests and satisfies them more than larger and costlier buildings; or why, without any copyism, the architect seems to have succeeded in catching the true spirit of mediæval architecture. Now I think that, unless we discover the element of his success, and recognize it as a principle not lightly to be infringed, we shall not make much progress in church-building beyond the point to which the revival has already carried us. Do not suppose that I am presumptuous enough to speak disparagingly of what has already been done, and is now doing; nor to imagine that I can tell you anything new and startling on the subject of church-arrangement; but I cannot help thinking that there is a good deal of misapprehension and false feeling afloat on this question; and the more we can work together and mutually assist each other to recognize true principles and sift them from unfounded prejudices, the better prospect have we of that onward progress without which art must decline and die. I suppose we have all felt, in comparing old and new churches, that there is often a deep sense of interest and continued satisfaction in exploring an old church, although it may be very plain and simple, which is totally wanting when we visit a neighbouring modern church, apparently its superior in all the usual architectural features. This is generally attributed to the charm of antiquity, and the sentiment of association; and these feelings no doubt have their due weight. But there is something beyond this, which I believe to be the existence in the old building of a principle apparently quite instinctive in the Mediæval architect, which is too often (I cannot but think) overlooked by us. The principle I allude to may sound absurdly trite and hackneyed, but it cannot be too often repeated, until it is better attended to. It is simply *that a building should exactly express its purpose*; or, in other words, in the case of a church, that the bare walls or actual skeleton, before a bit of furniture is introduced into it, should bear the distinct impress of every part of the ritual existing at the time of its erection, and should give expression to all ceremonies and forms of worship about to be celebrated in it. Thus it may well be regretted, in a purely architectural point of view, that we are forbidden to erect stone altars. They were removed in 1550, to make room for communion-tables; and, though we may deplore, we can scarcely wonder at the measure. Mosheim, in his ecclesiastical history, remarks,—"Posterity may regret this change as needless in itself and an injudicious sacrifice of a venerable decoration; but contemporaries alone can adequately judge of such questions; and they (the Reformers) had undoubtedly a degree of difficulty in weaning the people from inveterate superstitions, which rendered all incentives to them obnoxious." But though our altars may not be of stone, we still may and no doubt ought always to mark, by some constructive feature, the exact position of the holy table; not necessarily elaborately and expensively, where funds will not allow it, but, at any rate, distinctly and thoughtfully; and let us always remember that, on no higher than artistic grounds, a little extra cost here, at the expense of the body of the church, will have far more value than the same amount expended in a sprinkling of meagre and uniform decoration over the whole building. I do not wish, in a paper of this kind, to say too much upon the higher grounds for making this the point of attraction in the church, nor to insist at too great length on the credence table, piscina, and sedilia, as architectural features; seeing that these are, after all, only adjuncts, depending on particular forms and methods of celebration, the propriety of which this is neither the time nor place to discuss. But the principle of always expressing the position of the altar by a solid reredos depends simply on a question of fact:—Is the most sacred and solemn portion of our ritual celebrated there or not? If it is, the building itself should bespeak the fact.

To proceed next to the font.—Although the orthodox, traditional, and symbolical position of the font near the western entrance is now very generally adhered to, I have heard a great many different opinions amongst the clergy as to its convenience. Amongst others, Mr. Pettit remarks:—"Where the font is suffered to retain its original position it is generally found near the western entrance, and this, without doubt, is the most appropriate spot for a ceremony denoting admission into the Church; yet there may often exist sufficient reasons for placing it elsewhere; and it is of far more importance that we regard, both in position and design and the actual size of the font, the great solemnity of the rite which is administered in it, than that we restrict its locality to any particular part of the building." Wherever it is placed, its position should at any rate be well defined and expressed by some modification or exceptional feature in the architecture; so that there may be a perpetual and ineffaceable protest against any future removal by a reforming churchwarden or a new incumbent.

I know an instance, by the way, of a font in a large modern church, which has been moved from west to east and back again three times in as many years; and in this case, as far as the building itself goes, one place is as appropriate as another. It would of course be inconsistent with the custom which now prevails of administering baptism during divine service to place the font in a distinct baptistery where it could not be seen by the congregation; but, if a little thought be bestowed on it, we shall generally find that some distinctive feature may be introduced which will add interest and beauty to the church, and fulfil the purpose I speak of without cutting off the congregation from participation in the service.

Mr. Pettit, a little further on, in the passage I have quoted just now, supports the principle of making the font as far as possible a part of the building, and not only an appendage. He uses this last term in speaking of the font, and then immediately adds:—"An appendage, indeed, I should not call it; as, in old times, it was considered the very heart and nucleus of the church, erected often long before the walls and roof which were to cover it. The well-known font of St. Martin's, at Canterbury, is evidently much older than any part of the present building; and it is not improbable that it even preceded former ones. In Norburgh church the font is decidedly Early English, none of the building being earlier than late Decorated, most of it of the latest Perpendicular.

There are, of course, numerous examples, in churches built of late years, in which the font is given its proper importance, and has a well-defined and yet prominent and open position given to it.

An arrangement of this kind has been admirably managed in a small church in Suffolk, lately built by Mr. Scott, where a round tower (after the fashion of the peculiar round towers of that county) is placed at the west end. It is vaulted with stone internally, and forms an appropriate baptistery. But, having noticed the principle, I will not take up time by multiplying examples.

Let us pass next to the consideration of the reading-desk and pulpit. Now, although these two play, if not the most important, certainly the largest part in our services, it is not often that we find one or the other treated as part of the building, or influencing its constructive details in any way. They are usually pieces of furniture which give no more impress of character to the building than the seats of the congregation: the exact position of each, and even the design, is generally not settled until the church is nearly completed. (Perhaps, indeed, it is fortunate, sometimes, in the case of the pulpit; as instances might be found where, through inattention to acoustic requirements in the first instance, a change in its position is absolutely necessary. But supposing that the pulpit is of stone, and the reading-desk on a stone plinth, this is not all that is required to meet the principle we started with unless they form part of the building. You may have stone furniture as independent of it as wooden furniture. With regard to the reading-desk architects unfortunately find a great difference of opinion among the clergy: one wants a large desk looking north and west: another wishes the whole desk to face west; and a third wishes, perhaps, to read prayers from a small desk in the chancel seats, and the lessons from a movable lectern. Without venturing to express an opinion as to what is absolutely the right form of reading-desk in a ritualistic point of view, I feel a strong conviction that, architecturally speaking, wherever prayers are habitually read by the minister, the building should give some indication of the fact. We have before us the well-known examples of the arrangement of the early Christian basilica, where we find this principle carried out in every point as completely as could be done in adapting a building originally designed for secular purposes to the requirements of public worship. Such parts of the building as could be still used in Christian worship were adapted, and what was wanting was added architecturally and incorporated in the building as far as possible. Thus the bishop and presbyters, as you know, took the places of the prætor and his assessors; the Roman altar became the Christian holy table; and a choir was thrown out into the nave enclosed on three sides by low walls. The ambos, from which the Gospel and Epistle were read, were actually built into these enclosing walls, and thus made part of the church. The church of San Clemente, at Rome, as you all know, shows, in the most perfect manner, the arrangement of the early basilicas. Although rebuilt in 790, it was exactly on the original plan; and it is owing to the fact of all the ritualistic arrangements here and elsewhere being absolutely solid and architectural and not merely movable furniture, that we are able at this time to understand fully the allusions and descriptions of early writers. Those who have

not seen the church itself, to judge of the eloquent manner in which the building speaks its purposes, will find it illustrated and described in Gally Knight and in Fergusson's Hand-Book.

Now, although the ambos do not exactly answer to our reading-desk, yet their uses were sufficiently similar to justify the analogy; and I think we may well take a hint from them. There is a good reason for the lectern to be movable, in the fact that a layman sometimes reads the lessons, as is the custom in college chapels, and not unfrequently in village churches; but I think we ought certainly to make the prayer-desk an architectural feature.

Next, as to the pulpit. At least two sermons are preached from it every Sunday in most cases; so that, I suppose, the preaching of sermons may be considered a fixed and essential part of our services; and if so, it ought, undoubtedly, to find expression in the architecture of the church. Now here, when we are at perfect liberty to look for assistance to the best times of art (seeing that the conditions for addressing a congregation must be much the same in all ages and for all creeds) here, where we should find plenty of assistance if we did look for it, we seem to neglect it in an unaccountable manner. I will just read a short extract from "Viollet-le-Duc's Dictionary" on this point, which exactly illustrates my remarks. In the article on pulpits he says,—

"In France none of our ancient churches have, as far as we know, preserved any pulpits of an earlier date than the fifteenth century. It was customary, from the commencement of the twelfth century, in our Northern churches, to arrange a rood-loft at the entrance of the choir, rom the top of which the epistle and gospel were read, and exhortations addressed to the faithful, when occasion served. In every case these sermons, before the institution of preaching friars, only took place occasionally. It is probable that in particular cases sermons were preached from a movable pulpit, arranged in some part of the church for that occasion. The pulpit was then only a little wooden stage, closed on three sides, and covered in front with a hanging. But in the thirteenth century, when the preaching orders had been established to combat heresy, and to explain to the people the truths of Christianity, preaching became a necessity which the architectural arrangements of religious edifices were compelled to obey. Exactly to fulfil these conditions, the Dominicans and the Jacobins, amongst others, built churches with two naves, one being reserved for the monks and divine service, and the other for preaching. *Then the pulpits became fixed, and entered into the construction.* They formed, as it were, a balcony projecting into the interior of the church, carried on corbelling, accompanied by a niche taken out of the wall, and generally lit by little windows. Access was gained by a little staircase contrived in the thickness of the wall. Thus, we see, the thirteenth century architect at once felt instinctively that when a sermon became a thing of fixed and regular recurrence, instead of an occasional address, he must express the fact in his building. It was no longer sufficient to provide a little movable wooden stage closed on three sides, but he must contrive a balcony or some architectural feature that should distinctly proclaim its original use as long as the building should stand. There is an instance of such a pulpit in the south nave of the great church of the Jacobin Convent at Toulouse. It has long been disused, the balcony and corbelling shaved off, and the niche blocked up; but still there are the evident remains; and you must pull down the building before you can obliterate the traces of what it has once been. As I said just now, a particular form of pulpit can have no more to do with creed or doctrine than a particular kind of brick or stone in a building (although I have heard a stone pulpit objected to on principle); and if this method of treating a pulpit was right in the thirteenth century, it is right now. We ought to feel, as instinctively as the architect of that day, that "a wooden stage closed on three sides"—in fact, any sort of pulpit not entering into the construction of the church, does not thoroughly satisfy a principle we all acknowledge in the abstract.

The examples of ancient pulpits treated in this thoroughly common-sense manner are very numerous. But we must not confine our search after the earliest and best examples to the interior of churches: we shall find some of the best in the refectories of monasteries, used for reading to the monks during their meals. A very fine example of this kind of pulpit exists in a building (formerly the refectory) attached to the cloisters at Chester, and now used as a school. It is well worthy of careful study, and gives a peculiar character and interest to the building. The woodcut, in Viollet-le-Duc, of the beautiful pulpit in the refectory of St. Martin des Champs, is, I presume, familiar to all. We find a great variety of later examples, both in the interiors of churches and exteriorly in the cloisters and elsewhere, such as the well-known examples at Beaulieu, Magdalen College, Oxford, and St. Lo, in Normandy. There is one peculiarity about nearly all ancient pulpits which, although belonging more strictly to the second part of the subject, I will allude to now as forming part of their construction. It is, that they nearly invariably have what the French call an "abat-voix," or voice-reflector (to avoid the obnoxious term of "sounding-board"). Where part of the pulpit was formed by a niche or recess, the roof of the recess, of course, acted as one; but, if attached to a wall or pier, some covering was almost always added. "For pulpits," says Viollet-le-Duc, "erected in the open air or in churches, the necessity was soon felt of suspending a ceiling over the preacher, to prevent the voice from losing itself in space." This is actually now done, in the large churches in Italy, with exceedingly picturesque effect, by suspending a large cloth or awning by the four corners over the pulpit. I only mention these facts, because there seems to be an unfounded prejudice now against sounding boards altogether.

This is probably owing to the monstrous erections of the last century, which seem, by some suspension of the laws of nature, to be balancing themselves on one corner, and to be ready at a moment's notice to shut down on the preacher like the lid of a trap. Although apparently of enormous weight, they are generally, in fact, made of thin wood, and comparatively light, and are altogether shams and abominations; but, because they are bad in design, I see no reason why the use of sounding-boards should be condemned altogether. Those of you who heard our president's admirable paper on "Acoustics," last Monday, will have heard that they have a decidedly beneficial effect in many instances; and I think that, though in most cases it may be unnecessary yet where there is any reason to suppose it may serve a useful purpose, it would be much better for the architect to incorporate it with his design, and put it up at once with the pulpit, than to run the risk of his work being disfigured hereafter by its addition. In a church with which I am well acquainted,—a fine building, only lately finished,—a sounding-board has been added to the pulpit, within the last few months, with exceedingly bad effect; cutting, as it does, into a beautifully carved capital; but the acoustic improvement is so great that we have to overlook its ugliness. I do not know whether the architect of the church was called upon to mar his own design in this instance; but I think it is a case where a sounding-board, originally designed by him as part of the pulpit, might have been made not an unpleasing feature.

There is still another part of our services which requires notice, and that is the musical portion. The only point about it which I wish to enforce in this division of the subject is this,—As an organ is now almost an invariable appendage to a church, and is generally considered necessary to the proper and decent celebration of our service, it should impart a distinctive character to that part of the building which is destined to receive it. I am aware that this is frequently attended to in modern churches, and always, I think, with a satisfactory effect. I could name instances of churches where such an arrangement has always appeared to me to give the chief interest and charm to the building. In small village churches, where a harmonium takes the place of an organ, a recess in the thickness of the wall may be contrived, with very good effect, at a small cost, and with unmistakable fitness of purpose.

I have thus briefly and imperfectly noticed some of the points to which we should all give especial attention in order to make our churches what they ought to be—the architectural expression of the ritual of the church of England.

Let us now take a very cursory view of the other branch of the subject—namely, the customs, wants, and requirements of modern congregations, and the effect they ought to have on the architecture of our churches.

To begin with,—I think that (arguing from the analogy of former ages), we may lay down the principle that respect for precedent and sentiments of association should not prevent us from discarding any peculiarity of construction or arrangement that is found distinctly inconvenient or unsuitable, and which does not express any part of our ritual. As a single illustration of this principle, we find that the questionable associations which must still have clung to the heathen basilicas did not prevent the early Christian congregations from transferring their religious services to them from the baptisteries, which are now believed to have been the original ritual churches. This, of course, could only have been done because the hall of the basilica, with its side aisles, was found to be much more convenient for the decent celebration of their services than the circular and octagonal baptisteries. In the same way I think that, in any point where convenience is at stake, we ought not to be too much confined by the precedent of Mediæval architecture. Neither our ritual nor our congregations are the same as those for which our ancient churches were built; and it is scarcely to be expected that, if they were exactly suited to one, they will be equally so to the other.

We have seen that at the Reformation Gothic architecture had arrived at its last stage. King's College Chapel, its last great effort,—commenced a century before,—had been finished about twenty years; and there can be little doubt that, had it been possible for a new and true architecture to have sprung up with the Reformation from the ashes of the old, we should have had churches as beautiful, but as different from the Mediæval buildings, as they in their turn were from the early Christian basilicas.

Beyond the absolutely essential division of nave and chancel, I do not wish to occupy your time by saying much about varieties of plan. This is a question which must depend so much upon peculiarities of site and the number of the congregation, as well as other points, that it would form a long paper in itself. Those eccentric varieties in the form of theatres and lecture-halls I need only allude to, as I hope we are all agreed that turning a church into a great auditorium is not only subversive of all proper ritual expression in arrangement, but renders it almost impossible to conduct the service in a decent and reverent manner.

At this point, however, it will be as well to take some notice of the *vexata quæstio* of galleries. We all know the numberless objections to them, and I suppose no one would employ them by choice; but where they become actually a necessity, which is often the case, they should certainly be treated as part of the construction, and their presence should be expressed externally. Great care should of course be taken as to their height and the steppings of the seats, so that they may neither overpower the church by being too high, nor oppress the occupants of the aisles by being too low. A flat ceiling under the galleries will be found to be much better for acoustic purposes, and more satisfactory to the eye than an inclined one. There is one position, however, for a gallery which is, in some churches, almost unobjectionable, from its answering two good purposes, one mentioned by our president last Monday, that of breaking up and dissipating the sound from the east end, and preventing echo; the other, that of clothing the conspicuous bareness of the west wall, which in many churches is far from agreeable.

To return from this digression: let us start with the acknowledged necessity of a nave for the congregation and a chancel (not too deep) for the clergy and choir; and let us take a modern congregation of say 1,000 persons and consider the wants and requirements we have to meet. The first thing to be noticed is that, according to received notions, the seats must be fixed; and, if we may judge from the serious inconveniences which attend the use of chairs where they have been tried, they are not likely to come into general use except as a temporary expedient.

The next requirement is, that all the congregation should have an uninterrupted view and hearing of the officiating minister. It may not seem, at first, evident that an uninterrupted view is necessary; but, in point of fact, nothing is so difficult or irksome as to keep up one's attention to a speaker who is unseen. This applies, of course, chiefly to preaching.

The next requirement, whether right or wrong, is, that no one should feel too cold or too hot; that there should be no draughts in the church. It may seem to many beneath the dignity of this subject to notice so trivial a detail; but, as a matter of fact, it will be found to be considered a most important thing; and it is not for us to decide whether it is right or wrong. If the age demand warming and ventilation we must give it them.

Now let us compare with this Mediæval and earlier congregations. The warming of churches may be considered, I suppose, in the first place, quite a modern luxury. Next as to seats. In the basilicas, there were certainly no fixed seats except for the clergy. The congregation, whether

standing or kneeling, arranged themselves round the three sides of the choir. No one would then place himself by choice immediately behind a column; a defect, unfortunately, unavoidable in a modern aisled church with fixed seats. In our Mediæval churches, on the other hand, distinct hearing of the services was a matter of no particular moment, as the loss of a syllable or of an unknown tongue could not interfere with the devotion of the faithful, and sermons did not form a regular part of the service as they do with us. Now, I am far from wishing in large churches to abandon aisles, and substitute a large nave under one roof; for I quite agree with our president, in his remarks last Monday, that the form of nave and aisles, which is hallowed by so many centuries' use in the Christian church, is also the most convenient for the decent and reverent celebration of our services, for hearing, and for economy of space, or rather cubic content. There is, however, one defect in our system of aisles which we are bound to remedy as far as we can; namely, the obstruction of view caused by the columns. I am aware that many architects think this practically nothing, but I have tried the experiment many times myself, and can therefore assert that in an ordinary aisled church there must always be a large proportion of sittings cut off from the view of either altar, reading-desk, or pulpit. The effect is practically very disagreeable, and to my mind inconsistent with the conscientious carrying out of the principles we profess. It appears to me that there are only two ways of overcoming the defect,—one, by no longer employing fixed seats; the other, by diminishing the column to such a diameter that the slightest movement of the head of any one placed behind it will bring the minister into full view. The largest diameter which can be employed to effect this is from 9 to 10 or 11 inches. Now, it is obvious that such columns can only be safely obtained by the employment of a material which has long been used without scruple for similar work in every modern building but a church. I allude, of course, to iron. There seems to be an extraordinary feeling afloat against an iron column, as unecclesiastical and ugly. Now, to say it is unecclesiastical is nothing more nor less than narrow-minded prejudice; and to say it is ugly is to acknowledge our own shortcomings in having left it so, so long. In defiance of art-critics, the civil engineer has long decided that it is good construction; and it is high time for the architect to take it in hand and make it good art. I believe a check has been given to progress in this really grand, and almost new, field of design (artistically speaking), by the solemn denunciations levelled against the use of iron in architecture (except as a tie) by an eminent authority a few years ago. The argument gravely advanced in support of his views, namely, that we find no mention of iron architecture in the Bible, might as well be used against stained-glass in decoration. Whatever may have been the cause, it is a fact, that church architects, until quite lately, have appeared to be ashamed of the use of iron as a constructive material. In cases where it has been used for columns, it has usually been from motives of economy; and instances are not wanting (happily not recent ones) where it has been neatly painted and sanded in imitation of stone. If used at all, the material should, of course, be treated as what it is; and I cannot doubt that, if properly handled and elaborated, iron columns may be made beautiful and attractive features in church architecture. It may be thought a very great innovation to gain but a small advantage, but there is a true principle involved in it. I cannot see why an iron column (which cannot have less to do with our ritual than a stone one) should be thought unecclesiastical, nor why it need be ugly; nor do I like to hear distinctly useful and convenient materials and modes of construction objected to simply on grounds of precedent and association. One objection I have heard raised against them is, the bad proportion they would bear to the superincumbent walls; but this again I believe to be, according to true principles, simply a question of association. In using a new material in a new position, we must create new feelings of association for ourselves. If a few good examples were erected, people would soon begin to get used to the proportion, and to like the thing, as undoubtedly right and full of purpose.

Before leaving this question of association, I have a few words to say about church warming. As I just now remarked, we find that this is a most important point, and nothing disgusts a congregation so much as finding themselves in a cold, draughty, or ill-ventilated church, where the ladies cough all the winter, and faint all the summer. You need not fear that I am now going to enter into any discussion of the best means of warming and ventilation. I merely wish to point out that we, perhaps oftener than necessary, increase our difficulties and impair the perfectness of the system adopted, by thinking it right to hide away as much as possible all the paraphernalia of chimneys, &c. For instance, I want a chimney for a vestry, and one for the warming apparatus; but I am afraid of making a good stack, and carrying them to the proper height, lest any one should tell me I have given my church too domestic a character. Ought I not rather to consider that, when we insist on introducing domestic comforts into our churches, that fact must, under an intelligent architect, come out distinctly in the character of the building? Our congregations cannot be provided properly and truthfully with the comforts and luxuries of home without paying for it by the disfigurement (if it be a disfigurement) of their churches by domestic features.

The next consideration—convenience of hearing—has been so fully discussed at the Institute by our president in his admirable paper, that there is little left for me to say. I fully agree with his remarks on the acoustics of churches; and I was particularly struck with the opinions he expressed as to open roofs and lofty naves, contrasted with a low proportion and boarded ceilings, as completely coinciding with my own convictions on the subject, based on observation and comparison of many buildings.

We must recollect that, in making observations on the acoustic qualities of churches, it is not sufficient to go yourself once, and try how you can hear at any particular part, as there may be many disturbing causes acting at different times. One of the best tests is whether it is what the clergy call an easy church. Inquire of a few clergymen who have done duty there, what they think of it in this respect, and you will form a truer estimate of its qualities than if you ask half the congregation. I believe it is little known how many clergymen's health is seriously impaired by having to do duty, day after day, in a difficult church. It, therefore, becomes not only a question of convenience to the congregation, but of health and comfort in many cases to the clergyman.

It now only remains for me to touch upon our requirements as to the musical arrangements of a church; and here let me say that, though it can scarcely, perhaps, be expected of a church architect that he should be a musician, yet he should make it his business to understand something of the construction of the instruments used in a church. An organ, the most beautiful of instruments when in tune, is one of the most disagreeable when neglected; and every one should know how sensitive it is to damp and draughts, in order to guard against this in his arrangements for the reception of the instrument. If there is a choir the organ should always be placed close to them, and the proper place for it is either in a side aisle of the chancel, or in an organ-chamber, built expressly for it, which is better. The effect of the instrument will be much enhanced, and it will be kept in better tune if the walls are lined with boarding on battens; and, if not in a gallery, it should always be raised on a platform some feet from the floor. The worst place for the organ on every account is in the west gallery, if there is one; and I believe organs are never now placed there in new churches. Of course I do not contemplate the possibility, in these days, of an organ appearing over the altar. In small village churches, where an organ can seldom be tuned, I think, myself, that a harmonium is much preferable. It has the advantage of not getting out of tune; and, though it has always something more or less wanting in the tone as compared to an organ, it is quite sufficient to lead the singers.

I have now taken a slight and hasty survey of our modern wants and requirements, and the influence they should and must ultimately exercise on our church architecture; and I must beg you to excuse me if I seem to have expressed any opinion too strongly, or if I have dwelt too long on any points which may appear trite, commonplace, or trivial. I feel that I have omitted much that might well and appropriately have been brought to bear on the subject, both from haste in preparing this paper and from a wish to be as short as possible; and I now relinquish the subject in the hope that the discussion will be taken up by others.

SOUTH KENSINGTON MUSEUM.—During the Christmas week, 14,179 persons visited the Museum.

DISTRESS IN COVENTRY.

THE accounts from Coventry and the surrounding neighbourhood are of the most distressing description. It is stated on reliable authority that in the ancient city and at Nuneaton there are about 30,000 persons who depend for their living on ribbon-weaving, and that there are probably 10,000 more persons who are shopkeepers, or in some other way depending on this trade. It is said that in Coventry alone the weekly wages are less by 6,000*l.*, and in the Nuneaton district 20,000*l.* less, than those of the corresponding week of 1859.

Those who are acquainted with the disposition of the chief number of the Warwickshire ribbon-weavers know that they are worthy of respect and consideration. In most instances they have by industry and economy purchased looms, and other property, at much cost. Independence of character and anxiety to work are characteristics of those workmen. Parish relief is the last thing they would think of asking for; and in hundreds of once happy homes the household property, bedding, and clothes, have been parted with for the purpose of providing food for starving children. Even to dispose of those matters is a difficulty: the pawnbrokers' shops are glutted, and little if any sale is to be had for this description of goods. The shopkeepers are in most cases in a state of ruin, and it is scarcely possible to collect rent.

In the midst of all this distress, the relief subcommittee is aiding so far as their slender means will allow; and assistance to the extent of from 1s. 6d. to 5s. has been granted weekly to families. All know how insufficient this is.

The season has been one of the wettest known. Dealers in female costume in the metropolis and in the provinces have suffered much. There was no demand for last spring's goods, and the summer was so uncertain that there was but a tithe of the requirement for ribbons and light goods. Besides, just now, such is the fashion, that scarcely any ribbons appear on the ladies' dresses or bonnets. Let us hope, for the sake of the Coventry weavers, that the uncertain whirligig may take a turn in favour of ribbons. A great deal of good might be done by a careful consideration of this in influential quarters.

THE BUILDERS' BALL.

THE ball on behalf of the Builders' Benevolent Institution, be it remembered, comes off at Willis's Rooms, St. James's, on Thursday, the 21st of February. The list of stewards is now being made up, and it is to be hoped past successes will not induce those who feel an interest in the excellent Institution to aid which this ball will take place, to relax either in their anxiety, or in their efforts, to make it as great a success as ever, if not to render it a still greater success than it has ever yet been.

THE PARIS OPERA-HOUSE COMPETITION

AN EXAMPLE.

THE Minister of State, Walewski, in the *Moniteur* of Monday last, announces that a competition is open for the drawing up of a design for the new opera-house. The competition is to take place on sketches, not finished designs,—sketches sufficiently made out to convey the ideas of their authors, as well upon the general economy of the edifice as upon its monumental aspect. The competition will be closed on the 31st inst. A general plan, geometrical elevation, longitudinal section, and descriptive and estimative particulars are required; but competitors may add such other drawings as they may think necessary. A jury, presided over by the Minister of State, and composed of members of the Academy of Fine Arts, in the architectural section, will examine the designs, and classify them in the order of their merit.

The author of the design which shall be declared not only the best of those submitted, but as meeting fully the views of the administration, both as to art and construction, will be commissioned to produce a definitive design, and have the direction of the works.

The author of the design second in merit will receive a premium of 240*l.* (6,000 francs).

The author of the design third in merit, 160*l.* (4,000 francs).

If no design worthy of being executed be presented, the first prize will not be awarded, and the administration will act as it thinks fit in obtaining the definitive design. But in any case the two premiums will be awarded to two designs.

A programme of requirements is given, with a plan of the site. The theatre is to accommodate

A WELL IN NORMANDY AND ONE IN KENT.
A Contrast and a Hint.

an audience of from 1,800 to 2,000 persons. The present Opera-house has 1,700 places. The stage of the new house is to be capable of accommodating about 400 persons.

A VILLAGE WELL IN NORMANDY AND ONE IN KENT.

"COMPARISONS are odious." No doubt of it; and, generally speaking, are to be avoided. Nevertheless, the operation has its value. It is useful to look back, and to look abroad, and to see whether what we do here is better or worse than what was done previously or elsewhere. One of the things compared may be seen to be "odious," but that may perhaps lead to amendment. While a thing of beauty is "a joy for ever," a thing of ugliness is a lasting injury; and, if the latter fact were enforced as constantly as the first, good would result.

In glancing at the few old water fountains or conduits which have been left in England, it will be seen they had little generally to recommend them. In the market-place of the city of Durham the old conduit still remains. It is a plain octagonal building, some 15 or 16 feet in height, surmounted by a figure of Neptune with his trident, striking a dolphin. At Newcastle-upon-Tyne the numerous conduits for the supply of the town with water were useful in their day, but not at all ornamental. Hobson's conduit, in Cambridge, though picturesque, had no great beauty. The conduit near the bottom of Holborn-hill, in London, seems to have been a handsome structure.

Generally, throughout England, the wells—even those that are associated with historical events—are not remarkable for their architectural adornment, although wells afford a good opportunity for the display of skill and taste. There are a few exceptions.

Of our pumps in towns, country, and villages, the less said the better. And yet what a wide opportunity. The number of "pumps" amongst us is enormous. The same objection will apply to most of the drinking-fountains.

Although the supply of water by wells, owing to the chances of pollution, is not to be recommended, in many cases this is a necessity; and for years to come wells in certain positions will be required. How many pretty pictures might be formed among green shady trees in parts of England if, instead of the ordinary wooden well-roller, and in some instances the round plain enclosing walls now in use, the same spirit of architectural design were shown as in the ancient French example which is here engraved. In some parts of Normandy and other parts of France, in addition to the architectural decoration, the upper portions are ornamented with richly-designed hand-wrought iron work, which has an excellent effect. The well in Antwerp which Quintin Matsys adorned; the well in the court-yard of the Hôtel Cluny, Paris; and other examples, are well known to all.

NOTES OF THE RECENT FROST.

NOT many hours of the severe weather had passed when in several districts of the metropolis the water supply was stopped, causing the greatest inconvenience. Last year we made some remarks on the same subject, and it now calls for further notice. We have again made inquiry, and find that the mischief does not arise so much from the freezing of the tap and pipes immediately in connection with the cisterns—as by the application of heat this part might be thawed,—but, owing to the pipes which pass from the main to the houses being laid too close to the surface, the frost in a few hours stops the water supply. When houses are being built, the expense of placing the pipes at a sufficient depth below the surface would be but trifling, and the water supply would be more sure. It is not well at Christmas time for the families of industrious persons to be left without one of the most common and necessary elements of life.

The experience of the last few days shows that the footpaths have been generally ill kept. The law is, notwithstanding, distinct on this point; but no means seem to have been used by the authorities to carry out the necessary measures. Great distress at the present time prevails in several parts of the metropolis. A strong lad could easily earn 1s. 6d. in a morning by cleaning door-steps. Supposing that the regulation for the cleansing of the pavement were strictly carried out, it would cause a considerable amount of employment at a season when it is much needed. Taking the houses of London at about 600,000, the cleansing of the pathways would, at the rate of 1d. each, come to 2,500*l.* for every cleaning operation. This would be of much benefit, not only to the poor, who would gladly earn it, but also to thousands of wayfarers.

CO-OPERATIVE SOCIETIES.

SOMETHING is doing in the way of establishing co-operative societies in London. A large meeting has recently been held in Islington for the purpose of introducing the system. Mr. F. J. Furnival, M.A., of the Working Men's College, took the chair, and urged that by this system the workman would be his own master, and that one of the advantages of the system would be that to a certain extent they would avoid being exposed to injury from adulterated food: clothiug and other matters would be obtained at a less cost, for all the members participated in the profits. It was stated that some of the societies which have been established divide yearly as much as from 1s. to 2s. 10d. in the pound on the amount of consumption, in addition to the 5 per cent. on the paid-up capital.

After a resolution had been passed advocating the formation of the "Caledonian and Great Northern Provident Co-operative Society," Mr. Gardner, the secretary, reported that the society, since its commencement, had met with far greater encouragement than had been anticipated, and that the peculiar features of the association were that members should enroll themselves at 1*l.*, taking five or more shares, to be paid up in no less sum than 3d. per week, to form a capital for the purchase of groceries, &c., pure and unadulterated, according to the rules of the Board of Health; the profits realized to form a fund upon which 5 per cent. to the shareholders should be paid, and subsequently a dividend to the purchasers. They only now required a few more members to enable them to open stores.

CHURCH OF S. MICHELE, LUCCA, ITALY.

THE Church of S. Michele, in Lucca, is one of the most extraordinary specimens of art in Italy: few who have once seen it will forget it. It must be called Romanesque rather than Lombard: Pisan Romanesque would describe it more precisely. The illustration we give of the upper part of the façade is drawn from a photograph, and contrasts very curiously with the view given in Mr. Gally Knight's "Italy." That author says,—

"The embellishments of San Michele di Lucca record and illustrate the changes of fortune which that city underwent, and will be found to be contemporaneous with the period at which it enjoyed free institutions. The church was originally founded by Teutprandus, and Gumpranda, his wife, A.D. 764, and the bulk of the fabric belongs to that date. At that time the Archangel Michael, for whom a particular devotion had in the preceding century been imparted from Apulia into the north of Italy, was the favourite protector of the Lombards. But the rich facciata to which this church owes its celebrity was added at a much later period, in A.D. 1188, when Lucca was a free town, its inhabitants having resolved to do credit to themselves by adding splendour to their public buildings.

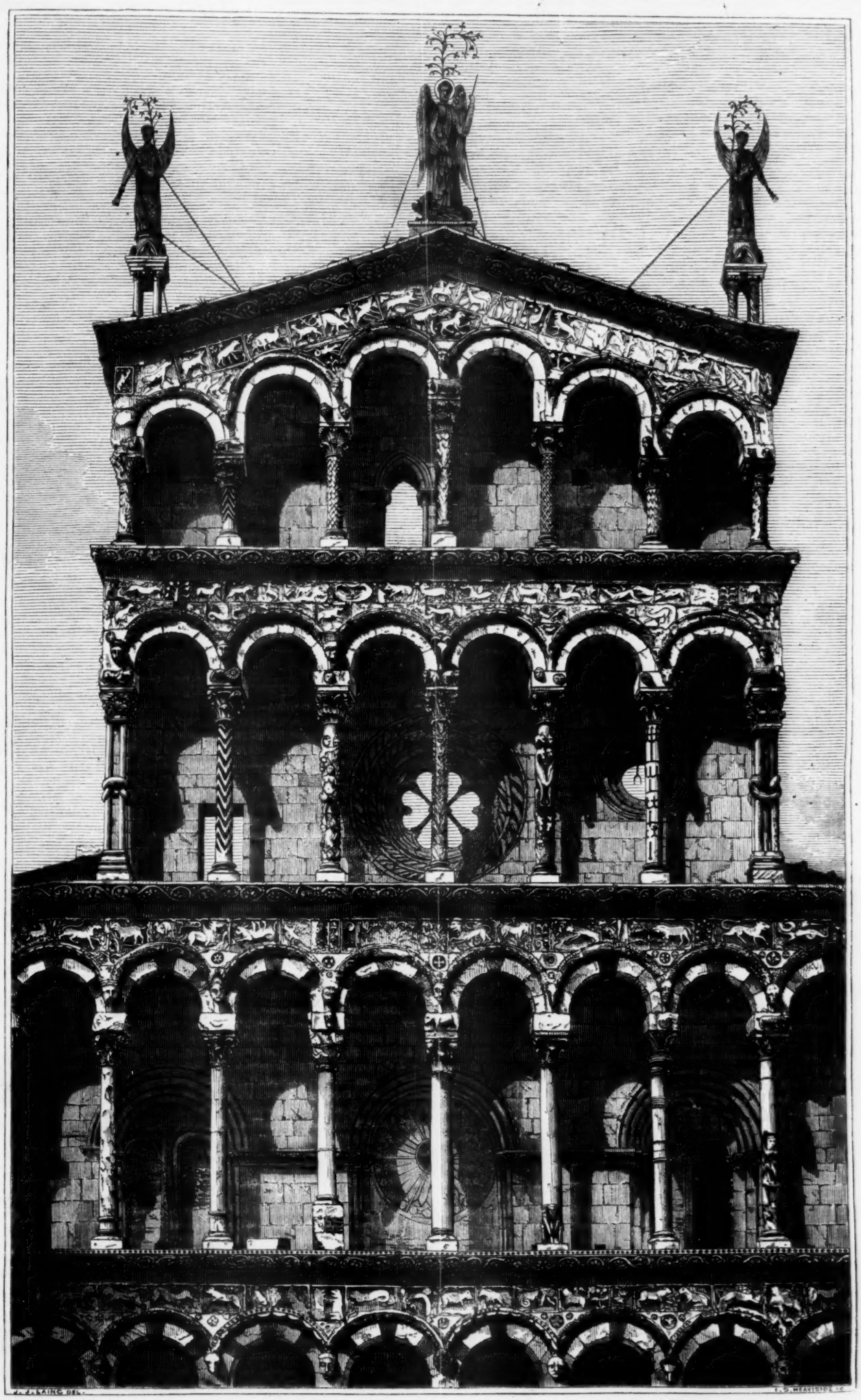
In 1188 the celebrated architect, Guidetto, who was afterwards employed to decorate the cathedral in the same manner, was called upon to ennoble the west end of San Michele. The idea of the facciata is evidently taken from the cathedral of Pisa, although executed in the more florid style which had subsequently come into fashion. If this facciata sins against classical rules in the multiplicity and irregularity of the orders of its columns, in their variety and over-enrichment, it nevertheless produces a grand and imposing effect."

The whole is constructed of white marble from the quarries of the neighbourhood. The statue of the archangel at the summit is of colossal size: the wings are composed of separate plates of bronze, so contrived as to suffer the wind to pass through them freely, lest it should have a dangerous purchase upon so large a mass completely exposed to its power.

Nothing more was done on San Michele during the thraldom of Lucca; but, when Lucca was again enfranchised, the second order of the lateral colonnade was added. This colonnade is sufficiently in harmony with the façade, but evinces a greater degree of purity of taste.

The exuberance of ornament, the elegance of some of the details, and the play of light and shade constitute the chief attractions of the façade of S. Michele.

The churches of Lucca contain some interesting paintings, particularly works by Fra Bartolommeo: there are also sculptures by Civitali, a native of the place, who flourished in the latter half of the fifteenth century. He was a barber for the first forty years of his life, and then suddenly became a sculptor.



CHURCH OF SAN MICHELE, LUCCA, ITALY.

Upper Part of Façade. Pisan-Romanesque, Twelfth Century.

WINCHESTER: THE CATHEDRAL RESTORATIONS.

CONSIDERABLE works have been going on at the west end of the cathedral. One of the last acts was the placing of a new statue in the niche above the gable, executed by Newman & Son, from drawings prepared by Mr. Francis Joseph Baigent, of this city. Mr. Baigent was first requested to inspect the ancient figure in January last, when he found it so much decayed that scarcely a trace of its original appearance remained, except at the back, near the sides, in which part it had been comparatively little exposed to the effects of the atmosphere, and remained tolerably perfect; and from this part it was manifest that the figure had been boldly executed, and of some artistic merit. Mr. Baigent identified it as the figure of a bishop in full attire. He afterwards executed the detailed working drawings for its restoration—a front and two side views (to a scale of 1½ inch to a foot). From these Messrs. Newman produced the figure. The statue is a little more than 9 feet in height. In Mr. Baigent's opinion the old figure was not of earlier date than the close of the fifteenth century. Dr. Milner considered it either the statue of William of Wykeham, or of the ancient patron of the cathedral priory—Saint Swithin. The present restorers have adopted the latter opinion. Mr. John Colson is the architect superintending the works.

THE CHINESE AND THEIR CAPITAL CITY.

THOSE who (like the countryman who believed that London was paved with gold) anticipated that Pekin would turn out to be a splendid city must have felt some disappointment with the actual result of our forcible possession. The Chinese are a semi-barbarous people, architecturally speaking, though a very interesting nation as regards their possession of innumerable traces of ancient civilization of a high order, which civilization they do not now possess,—if, indeed, these traces belong, properly speaking, to the Chinese at all. They are not an inventive people, for example, though highly imitative, and very industrious: nevertheless, we find many traces of inventions of a high order of genius in their possession, but which they turn to little account in the way of advancement; such inventions, indeed, being more like the fruits of some ancient state of high civilization which have got into the hands of savages, who have been taught to make use of them to a certain extent, but who are quite incapable of having originated or even of improving upon them. If such inventions were really of native origin, therefore, the Chinese are a people, once civilized, who are fast returning to a savage state. Like that of all other ancient Eastern nations, their architecture is a strange mixture of the squalid and the splendid. In ancient times the most magnificent temples for the gods were surrounded by the most paltry human dwellings. It is much the same with the Chinese at present, if, for temples, we substitute the palaces of the Emperor and his high Mandarins, at Pekin. The splendour of these palaces, however, is much more an interior than an exterior—an upholsterer's and curiosity dealer's, than an architect's and builder's splendour.

"The appearance of Pekin," says one writer on the spot, "is disappointing. The great width of the streets makes the houses look small and mean, but the wood carving in front of most of them is most wonderful in the quantity and minuteness of its detail. Many of these carvings are gilt; and, in a long street of these shops, the effect is good. In dry weather the streets are 4 inches deep in dust; in wet, a foot deep in mud [not much worse than the London of the present day, by the way]. There is a raised road in the middle of the street, on which two carts can easily drive abreast: on either side of this road there is a lower one of about the same breadth."

"The Emperor's summer palace [now destroyed] is a succession of detached buildings, with large courtyards, artificial mounds of earth planted with trees, fish-ponds with rustic bridges, artificial rocks, and all those varieties of ornamentation you may see depicted on Chinese crockery and drawings. The buildings have small pretensions to architectural beauty externally, and are more grotesque than handsome. Within they are more striking. The audience-hall is a well-proportioned lofty room, the floor of marble, the roof richly painted, supported on wooden pillars: the throne is a magnificent piece of wood carving. The whole suite or suites of apartments were furnished in the most costly style."

The French general writes to the French Minister of War in rather high-flown terms as to the splendour of the Yuen-Ming-Yuen, or Summer Palace, which, he says, is approached by a road paved with granite flags and a handsome bridge.

Respecting the palace itself, he says,—

"It would be impossible for me to describe to you, Monsieur le Maréchal, the magnificence of the numerous buildings which succeed each other over an extent of four leagues, and which compose what is called the Summer Palace of the emperor, being a succession of pagodas, all containing gods in gold, silver, and bronze, of gigantic dimensions. One deity in bronze, a Buddha, is about 70 feet high: gardens, lakes, and objects of curiosity heaped up for centuries past in the midst of buildings of white marble, roofed with dazzling varnished tiles of all colours; add to that the view over a delightful country, and your excellency will have but a very feeble idea of what we have seen.

In each of the pagodas there exist, not objects, but whole store-rooms of objects of every kind. . . . . It would require a volume to describe all I have seen."

The *London Review* made a good suggestion, of which, however, the departure of the European troops from Pekin will probably prevent the realization,—namely, that a desire to open up their country by railway communication might be instilled into the Chinese by laying down one between Tien-tsin and Pekin, ostensibly for the convenience of our own army. The sight of such celerity of travelling *would* have forcibly struck the imitative and trafficking brains of the Chinese, who are far less disinclined to trading with the foreigner than their bigoted and grotesquely absurd Tartar rulers.

INSTITUTION OF ENGINEERS IN SCOTLAND.

THE papers read at the meeting held November 28th last, namely, "On the Application of Transversals to Engineering Field Work," by Professor Macquorn Rankine, and "On the Junction of Railway Curves at Transitions of Curvature," by Mr. William Froude, have been printed in the official report of Proceedings, and will be found valuable. It has become very necessary, curves of short radii being common, that curves should be set out with great accuracy, and that the cant to be given to the outer rail should be carefully adjusted.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

THE annual meeting of the Architectural Institute of Scotland was held on the 21st ultimo, Mr. Lessels, chairman of the council of management, presiding.

Mr. W. Miller, the hon. secretary, read the eleventh annual report. After a review of the proceedings of the past year, it stated that the Institute had obtained a lease, on very favourable terms, of a new meeting-hall at 89, George-street. The report also stated that the Duke of Buccleuch, President of the Institute, had kindly authorised the council to take casts from Melrose Abbey; and that they had been in correspondence with the secretary of the Architectural Museum, Brompton, London, in regard to obtaining duplicate casts from that museum.

Mr. Cosmo Innes then read a paper entitled "Suggestions for the adaptation of Architectural Style to Place and Site;" in the course of which he said,—

"When I see the progress of Edinburgh, its extension on every side, the constant change, and, I admit, general improvement in the streets of our New Town, I cannot doubt that the day is at hand when we shall have some of the same energy, the same taste and wealth, directed to the restoration of our grand old High-street. Now, when that day comes, I am sure the architects of Scotland will be prepared to treat the enterprise in a worthy manner. Why should our gables not rise bold and steep as of old, with crow-steps, if you please, or with those rich embellishments that seem so peculiarly suitable to that style which we naturally seek for in the grand old cities of Flanders and upper Germany, and which Mr. Burnett has taught us to find at Nuremberg? It is not only our tall gables that are capable of being made very effective and ornamental. Why should our architects (in towns at least) so carefully hide the roof of the house,—send out the lady without her head-dress! In the modern streets of our city we have but two styles—the style of last century, where the eaves came over the wall, and dripped over it (unless a lead gutter saved the passengers' heads) —or our modern fashion, which runs up a poor architrave or bit of cornice, trying to veil the slates and the roof altogether. I confess a great love for our genuine old Scotch style, of a range of windows breaking the eaves, and surmounted, each with its little gable, affording the most appropriate position for sculptured or chiselled decorations. Besides these, there may be our national corner turrets, which, when well managed, enliven the outline of our upper stories, without flying in the face of any style. But this is not all. These only provide for the lower stratum of the roof. I see no reason why the roof should not mount high above all these accompaniments, and bear with it tier after tier of dormers—as many as you choose,—and end, if it suits the situation, in a coping of open work, of which I don't know the name: it is amazingly effective in Glammis. I am unwilling to detain you longer on this part of my subject, which has, I dare say, been fully considered by professional men, who have found some impediment, which I cannot divine, to imitating some of the beauties of Flemish and German town architecture. I have ventured to recommend what I think the true course for improving our street architecture. It is in some degree with art as with language. We try back to the fountain of our mother tongue, not that we may speak or write like Chaucer or Barbour, but to gather or fix in our minds the foundations of grammar and idiom, which give us the mastery over our language and enable us to wield it. So with architecture. We don't want to build houses like the fifteenth century, cold and dark, without the comforts and conveniences of refined life; but if there is there the germ of our peculiar and national style, and if (as I believe) that style is capable of adaptation to all our present wants, it is for the architect, in following out his noble profession, to develop it, to modify and elaborate it; ever keeping in mind the spirit which can be found in every honest work of genuine art."

The reader afterwards criticised severely modern works in Edinburgh. After some conversation,—

Mr. J. D. Peddie read a communication from the Royal Institute of British Architects, intimating that proposals were under consideration for the establishment of an architectural examination for diplomas, and requesting suggestions from the Institute, and their opinion as to a series of regulations enclosed.

It was agreed that an early meeting of the Fellows of the Institute should be called to consider this subject.

ANNUAL GENERAL MEETING OF THE INSTITUTION OF CIVIL ENGINEERS.

ENGINEERING WORKS ABROAD.

AT the annual general meeting, held on the 18th December, Mr. Bidder, president, in the chair, a short account was given of the state of engineering in a few distant countries, and, particularly, in some of the British Colonies; because those undertakings might not be generally so well known, and because attention had previously been chiefly directed to engineering progress in the United Kingdom and on the Continent of Europe. In the course of it, it was stated that the principal engineering works in progress in Australia were roads, telegraphs, and railways. Telegraphic communication was established between the capitals of the three colonies, and Tasmania had been connected by a submarine cable, which was now unfortunately damaged, between King's Island and the Hummocks. The telegraph wires, which were carried overground, might be seen wherever there were towns, as would be gathered from the statement that there were now 1,000 miles in operation in Victoria, about 1,000 miles in New South Wales, and nearly 500 miles in South Australia. The railways, with the exception of two or three short lines near Melbourne, all belonged to Government, and had been carried out by means of loans; the only private undertaking of any magnitude, the Geelong and Melbourne line, having lately been purchased by Government for about 750,000*l.*, at par.

The oldest railway in Canada, a short line called the Laprairie and St. John, was opened for traffic in July, 1836. From that period until the year 1849, little progress was made in the extension of railways. At the commencement of 1857, there were 1,402 miles of line in operation, and at the present time the mileage was 2,093, and the number of railways fifteen, all which, with one exception, had been constructed between 1852 and 1860. The three principal lines were the Buffalo and Lake Huron, the Great Western, and the Grand Trunk. The Canadian railways had nearly all a uniform gauge of 5 feet 6 inches, and were all single lines. The average cost per mile of the main lines had been about 15,000*l.*, inclusive of rolling stock and other expenses. The cost of the branches had ranged from 6,000*l.* to 10,000*l.* a mile. The bridges were generally built of timber, which it was thought cheaper to renew every ten years, than to build at first in stone or iron. The capital embarked in Canadian railways amounted at present to about 26,000,000*l.* sterling, of which 4,161,150*l.* might be considered as the contribution of the province of Canada, inasmuch as the interest on that amount (249,669*l.*) was an annual charge upon its revenue.

The improvements which had been made in the iron manufacture during the last few years, and the changes that were now taking place, were then referred to; and it was stated that the result had been, that whereas the annual "make" of a blast furnace in the year 1750 was only about 300 tons, now it ranged from 5,000 to 10,000 tons per annum; and, in a few cases, amounted even to 15,000 tons per annum.

It was stated that the library was now occupying the attention of a committee of the council, with a view to ascertain what was required to render it as complete a collection as possible of works on engineering and the allied sciences, as well as of books of reference on general scientific subjects. The members were urged to assist in procuring copies of all treatises, reports, and documents relating to professional matters; as this was the natural place for their reception and preservation, where they could be consulted by all.

The abstract of accounts showed that the receipts for subscriptions and fees amounted to

2,550*l.*, and the expenditure to 2,100*l.*, the outlay for minutes of proceedings being much less than in previous years. There being thus a balance in favour of the Institution, in addition to the 1,000*l.* already placed on deposit at the Union Bank, it was thought advisable that an investment should be made, and accordingly 1,100*l.* Norfolk Debenture Stock, bearing 4 per cent. interest, was purchased. During the recess the Stephenson and the Miller bequests of 2,000*l.* and 3,000*l.* respectively had been received. Thus, the funded property of the Institution now amounted to upwards of 12,000*l.*; in addition to which, there was a further sum of 2,000*l.* to be received under the will of the late Mr. Joseph Miller, in which a relative had a life interest.

The thanks of the Institution were voted to the president, to the vice-presidents, and other members and associates of council; to Mr. C. Manby, hon. secretary, and to Mr. James Forrest, secretary; as also to the auditors of the accounts and the scrutineers of the ballot.

The following gentlemen were elected to fill the several offices on the council for the ensuing year:—G. P. Bidder, president; J. Fowler, C. H. Gregory, J. Hawkshaw, and J. R. McClean, vice-presidents; Sir William Armstrong, J. Cubitt, J. E. Errington, T. E. Harrison, T. Hawksley, G. W. Hemans, J. Murray, J. S. Russell, G. R. Stephenson, and J. Whitworth, members; and Capt. Galton, R.E., and H. A. Hunt, associates.

ASSOCIATION OF ASSISTANT ENGINEERS IN GLASGOW.

A SOCIETY under this title has been formed in Glasgow, having for its object "the interchange of the members' ideas on engineering and kindred scientific subjects, and the promotion of friendly feeling among the young men in the profession."

The association is to consist of "*bonâ fide* assistants and pupils to civil engineers, mechanical engineers, and shipbuilders."

Is there any good reason why it should not form part of the association of engineers, which could be made to include assistants and pupils? Surely there is disadvantage in these sub-divisions. Mr. Guilherme Fox is the secretary.

LECTURES FOR THE MULTITUDE.

WE know of few of the attractions of this season which have more interest than the lectures which Mr. Faraday has prepared for children. Week after week the philosopher addresses himself to the rising generation, who listen with intense interest to his remarks on the chemistry of a candle and the peculiarities of gases.

The good to be done by this description of teaching is great, and it is to be regretted that it is not managed on a larger scale. It is now no thing of wonder to see 10,000 and more persons assembled within a building to listen to the voice of one speaker, and we hope that ere long our most famous men will be found addressing multitudes in a popular way, and thus materially advance the general education.

Lectures of this description by Professors Owen, Faraday, and others, the price of admission made moderate, would be of the greatest benefit. In Paris the principal professors of art and science give courses of free lectures: such is the case now at the Geological Museum, and it is to be hoped that a similar plan will be carried out elsewhere.

CABINET MAKERS AND WOOD-CARVERS AT A DISCOUNT.

"BOIS DURÉE" AND MACHINE-WROUGHT WOOD-CARVING.

AN artist in Paris is said to have made a wonderful discovery, which will effect a complete revolution in the manufacture of cabinet-work. He has, it is said, found a means of rendering any description of wood so soft that it will receive an impression either of the most varied sculpture or the most delicate chasing. The wood is then hardened to the consistency of metal, while the impressions remain perfect. The artist has already completed some sculptured articles, such as picture-frames, inkstands, chests, and liquor-stands.

Was there not an invention spoken of some time ago in which steam softened wood for moulding and desiccating machines hardened it again? This alleged discovery, however, does not appear to relate to wood at all, except in the shape of sawdust, if the following account of what appears to be the same invention be the correct version; and it accords with an intimation given some time ago in the *Builder* as to a similar use of sawdust.

One of the results of the late French treaty, says a Manchester paper, has been the introduction into this city of a new product of art and industry called "bois durée," which will cause quite a revolution in the manufacture of many articles of ornamental and general use, and the discovery seems to be a great success. Bois durée, or hardened wood, is made from sawdust, which, under the influence of a high temperature and the enormous pressure of 600 tons, acquires a hardness a good deal exceeding that of wood. It is of a very fine grain, and fears no atmospherical variation; but its principal merit is its adaptation to moulding; and, by the most economical processes, forms and impressions are given which would require, in any other way, considerable labour and workmanship.

A new patent in machine wood-carving may be here noticed. It has been taken out by Mr. Abdiel Hawkins, glyphographer, of 65, Hatton-garden, London, and relates to the finishing of such carvings by means of hydraulic pressure under a mould after the carving has been executed, polished, and varnished. The provisional specification states that it is to be "placed in a hot metal mould (which mould should be taken by any of the ordinary processes from the original pattern of the said carving, and may at pleasure be brought to the highest possible degree of finish). Then by hydraulic power, if the work be large, a suitable amount of pressure is to be applied, when all the beautiful detail and finish of the mould will be communicated to the rough carving upon which you are operating. For subjects in high-relief in the round, compound moulds (that is to say, moulds which take to pieces) must be used. The above process is applicable also to certain wood-carvings roughly cut by hand labour."

ELECTRO-TELEGRAPHIC PROGRESS.

THE internal administration (as we may call it) of the electric-telegraph in the capital is being rapidly organized, and its slender threads are being passed from street to street over the house tops, as if some Brobdignagian spider were busy spinning its web overhead throughout the metropolis. The telegraphic interweavement throughout the country has been rightly compared (both by ourselves and others) to the nervous organization of the animal frame; and it is a curious circumstance that some speculative physiologists have an idea that, even within the head itself, the brain is similarly organized, and the association of ideas effected, by nervous threads, crossing and recrossing each other, throughout the mass, in every conceivable direction; every new train of ideas requiring a new series of thread connections to establish it in the memory. We do not mean it to be understood that we adopt this speculative idea: we merely wish to remark that the analogy with what is now going on within the bounds of the metropolis, in the organization of electric intelligence, is rather curious and interesting.

The cost, to business establishments, of having their branch and other premises connected in this way, is said to be only at the rate of some 4*l.* a year per mile per wire, with 8*l.* a year for the use of telegraphic apparatus. The alphabetic apparatus of Professor Wheatstone, as recently improved by him, is that put in use by the new Private Telegraphic Company, and his recording telegraph is to be also brought into use. The transmissive force used is the magneto-electric—not the galvanic. The wires are fine threads, covered with a film of indiarubber, put on by Silver's process, and wrapped round with tape to protect it: a rope of thirty strands, or threads, is barely half an inch in diameter. A line of this kind, containing sixty wires, stretches over the houses in the Strand from the central office of the Private or District Telegraph Company in the City. Other towns are also preparing for a similar internal or central and capital organization of the telegraph. Glasgow is in the van: so is Oldham, where the establishments of an extensive machinist firm, Platt, Brothers, & Co., have been connected by the electric wire, which is of steel, and only two-tenths of an inch in diameter, and is stretched along by the tops of six tall factory chimneys. The work was done by Mr. H. Wilde, of Manchester.

Another submarine cable has proved a failure. In the first instance it was manufactured for communication between Falmouth and Gibraltar, and about 100,000*l.* had been spent when the Government found it so expensive that it was abandoned. It was completed, however, for the line between Singapore and Rangoon within the last few weeks, and shipped; but its temperature has been found to increase so rapidly that, after anxious watching, it has been found to be impossible to send it closely stowed to a hot climate, for fear it should melt away,—the fate, we presume, of a large portion of the 400,000*l.* spent upon it. A proper scientific commission of inquiry and experimental investigation might have saved a good deal of money by this time in the laying of deep sea cables, besides realizing the cables themselves, which as yet can hardly be said of them.

The Toulon and Algiers line was being safely laid for about ninety miles, when it had to be cut in 1,300 fathoms water, in consequence of a collision between the vessels engaged in the laying. It has been buoyed in the meantime.

The North Atlantic Telegraph is about to be proceeded with, under the auspices of Sir C. Bright, C.E., who earned his knighthood by his connection with the laying of the afterwards unfortunate Atlantic telegraph, the directors of which, by the bye, have not yet abandoned their undertaking, whatever they may do or not do in respect to the line already laid.

The *Rangoon Times* announces that the wire to unite Burmah with Bengal has been completed. After traversing Burmah in a south-easterly direction it passes through Dacca, Chittagong, Akyab, and Sandoway, and thence across the Arracan mountains into the Prome district, where a junction will take place with the Pegu line, at the telegraph office in Prome.

INTELLIGENCE FROM GUERNSEY.

St. Peter's Port.—The old lighthouse on the south pier of the old harbour is being removed, and is replaced by a new structure at a distance of 26 feet. The new one is of timber, divided by platforms into three stories, the upper two being open work, and the lower boarded so as to form a shed for the light-keeper's stores. The lantern-frame is of brass and wrought iron, fitted with squares of plate-glass half an inch thick. The lighting is by means of gas, in which there will be a saving, it is said, of three-fifths of that consumed in the old house. The transmission of light is obtained from a catadioptric apparatus of the fourth order, similar to that of the Great Exhibition, and invented by M. A. Fresnel. The lantern and apparatus were supplied by Messrs. Wilkins & Co., of London.

Channel Islands Telegraph.—The half-yearly report of the company has been issued. The receipts for the half-year for messages exceeded the working expenses by 111*l.* 1s. 6d. The company have applied for an extension of the guarantee.

ASHTON-UNDER-LYNE SCHOOLS COMPETITION.

THE Committee for New Schools in the parish of Ashton-under-Lyne received, we are told, in reply to their advertisement, bewcen twenty and thirty sets of drawings from different architects. After an examination, the Committee (by ballot) selected the design bearing the motto "Sit præmium primo," whose authors were found to be Messrs. Hayley & Son, of Manchester.

There are to be three schools—for boys, girls, and infants,—to hold 250 each, and class-rooms adjoining. Each room is entered separately by a closed porch, opening out of which is a lavatory and cloak-room. The rooms are so arranged as that, when it is desired to address the scholars collectively, they may be thrown into one. The amount proposed to be expended, exclusive of teacher's house and boundary-walls, is a little over 2,000*l.*

CHURCH-BUILDING NEWS.

South Carlton (*Lincolnshire*).—The church of this place, which has recently been restored, has been reopened. A few months since it was found that the roof was very defective, and it was thought necessary to rebuild the greater part of the church. The work has now been performed by Mr. C. Ward, of Lincoln, builder, under the direction of Mr. S. S. Teulon, architect. The greater portion of the nave and chancel has been rebuilt: the south aisle has been rebuilt to the church; and the north aisle has also been rebuilt, the work having been badly executed in 1851. The tower has been repaired, and a heating apparatus, manufactured by Messrs. Simpson & Co., of Lincoln, has been placed in the church. Some additional alterations are contemplated. The whole work will cost about 1,000*l.*, the greater part subscribed by the perpetual curate, the Rev. W. F. J. Kaye, M.A.

Batsford (*near Moreton-in-the-Marsh*).—The

parish church has been rebuilt, with the exception of a small portion of the old walls. The design, which was furnished by Messrs. Poulton & Woodman, architects, of Reading, is in the Norman style of the eleventh and early part of the twelfth century. The tower is surmounted by a spire, which rises to about 100 feet in height. The floor of the whole church is paved with encaustic tiles, supplied by Messrs. Maw & Co. The church is heated by Haden's warm air apparatus. The carving was executed by Mr. Nicholls, of London. The contractors were Messrs. Young & Co., of Oxford. Mr. Scovell, steward to Lord Redesdale, and Sir Charles Rushout, Bart., fulfilled the duties of clerk of the works, to the minutest details. The entire cost of the work will be close upon 3,000*l.*, the whole of which is borne by the Hon. Miss Mitford.

Weston Turville (*Buckinghamshire*).—On Wednesday, the 18th ult., the ancient parish church of St. Mary was reopened, after having been partially restored outside, and entirely repaired and reseated internally. The whole of the seats have been replaced by others of a more suitable character; the gallery in the tower removed: all the piers and arches dividing the nave from the aisles, some of which were found to be in a dangerous state, have been thoroughly repaired and restored; and a warming apparatus, by Messrs. Haden & Co., of Trowbridge, has been constructed. The chancel has been repaired at the cost of the rector. The south and east walls have been rebuilt: a new east window has been introduced; and the three windows on the south side, against which heavy brick buttresses had been built, have been reopened and restored. The ceiling also has been removed, to show the timbers of a very handsome roof and cornices of the fifteenth century. By the re-arrangement of the pews, accommodation is afforded for 250 adult persons and 110 children. The church posseases a handsome font of early date in excellent preservation; and some very interesting relics of an early date, some being Norman, which were found in rebuilding the walls, afford evidence of an earlier church having once stood upon the site. Messrs. Fitkin & Co., of Weston Turville, were the builders; and the work has been carried out under the direction of Mr. David Brandon.

Ufton (*Warwickshire*).—The church here is being restored. The chief work of the present year has been the erection of a new roof, chancel arch, and porch, and rebuilding of south aisle. Mr. Watson, of Napton, is employed to carry out the restorations. A cross, in red Kenilworth stone, has been introduced at the point of the arch. The north aisle is now decorated with three stained-glass windows, the gift of the churchwarden. The several compartments represent the prominent events in our Lord's history,—the Birth, Adoration of the Magi, the Triumphal Entry, Bearing the Cross, the Crucifixion, and the Resurrection. Messrs. Hardman were the artists. In the opposite aisle are four windows, by Mr. Holland, of Warwick. They represent the Annunciation, the Ascension, the Raising of the Widow's Son, the Healing of Diseases, and the Acts of Mercy. The west and Clerestory windows are also by Messrs. Holland. The former contains the patron Saint after Guido. The window near the font, the work of Messrs. Heaton and Butler, of London, represents our Saviour sending forth his disciples to teach and baptize all nations.

Highworth (*Wilts*). — Through the liberality of Mr. Ambrose Hussey, of "The Close," Salisbury, according to the *Wilts Standard*, the chancel of Highworth Church is undergoing repair. Its old windows are to be taken out, and new ones put in. The parishioners, too, have unanimously resolved "that it is desirable to restore, improve, and reseat the parish church." Mr. J. W. Hugall has been appointed architect to the undertaking; and plans, estimates, &c., are in preparation. Lady Wetherell Warneford has headed the subscription-list with 300*l.*; Lord Radnor, 100*l.*; the Vicar, 100*l.*, &c. The sum already collected is nearly 700*l.* A correspondent of the paper just named calls attention to an alleged objection to the substantial leaden roof of the church,—that "in frosty weather, when the sun shines out and melts the frozen particles on the roof, the water into which they are transformed penetrates *through the lead*, and subjects many ladies and gentlemen to great inconvenience by dropping upon their dresses and coats." He explains that, in all probability, "the damp air in the interior having become frozen to the inner part of the roof, becomes melted by the action of the sun on the lead, and, of course, drops, in its liquified state, from the roof on to the dresses of the ladies and on the coats of the gentlemen;" and that a builder could, at no very great expense, provide a remedy for such a casualty without removing the enduring roof. More efficient ventilation beneath the roof may be all that is wanted.

Chippenham.—The tower and spire of St. Paul's Church are now nearly finished. The design, by Mr. Scott, has been carried out by Mr. David Jones, of Bradford-on-Avon, under the superintendence of Mr. Penton. The height of the whole from the ground is 172 feet, viz., the height of the tower, 74 feet; of the spire, 92 feet; and thence to the top of the weathercock, 6 feet.

Widcombe.—The ancient parish church of Widcome has undergone restoration, and been reopened by the Bishop of Bath and Wells. The architect employed was Mr. C. E. Davis. In addition to two memorial windows recently put up, a third has been placed in the old staircase to the rood-loft by the builders and carpenters, Messrs. Rogers, and Morgan & Lovell. It bears the inscription "Preach the Word. Be instant in season, and out of season." The ceiling of the tower has been raised 10 feet; but the stained glass west window below it, which is in a good state of preservation, remains as before.

Lowdham.—The parish church of Lowdham, in Nottinghamshire, and nearly equi-distant between Nottingham and Southwell, has recently undergone extensive restoration and repair, and been re-opened. The roofs and interior had long been in a sadly dilapidated condition: the internal walls were formerly plastered, and the church was disfigured by huge high-backed pews and an unsightly western gallery. The latter have been entirely swept away; and, by a new arrangement of the floor space, in the fitting up of open benches, a large number of persons can be accommodated with sittings. The area of the church has undergone no change. An archway has been opened in the tower below the belfry floor, and decorated tracery has been added to the new clerestory windows. The arches in the chancel have been re-opened, forming a vestry and organ recess on the site of what was once a mortuary chapel, probably belonging to the Lowdham and Broughton families. The plastering of the walls has been removed, and the face of the stone dressed and pointed. A new roof has been added to the chancel, and the gable raised in accordance with it, and the nave and aisle roofs restored. A large tomb within the altar rails has been removed by permission of a descendant of the family to whom it belonged, and the floor inlaid with encaustic tiles at the expense of the vicar, the Rev. Mr. Browne. A stained-glass window has been placed on the south side, at the sole cost of Mr. Abbott, junior. The expense of the restoration, according to the *Nottinghamshire Guardian*, will be about 1,500*l.* towards which the late Earl Manvers, the lay impropriator, gave the sum of 700*l.*, the remainder being raised by private subscription among the parishioners. The plans are prepared by Mr. Scott, and the whole work has been executed by Mr. J. Hall, of Nottingham.

Derby.—The new Congregational Church, in Victoria-street, Derby, has been opened. The church and schools together form a parallelogram of 138 feet by 63 feet; the entrance front of the former being on the north side and facing Victoria-street. The schools and library are at the south end, and the approach to them is from Becketwell-lane, next which street the whole building presents a frontage of 140 feet. A tower 69 feet high occupies the north-west angle formed by these two streets, and is surmounted by a slated spire 60 feet high, terminating with a metal cross and vane. Near the south end of the church are transepts projecting east and west. There are galleries in the north-east and west sides of the church with openwork fronts. The dimensions of the building are as follows: church, 75 feet by 50 feet, exclusive of organ recess, corridors, and transepts; school-room, 60 feet by 30 feet; seven class-rooms, averaging 12 feet by 11 feet; and a library, 60 feet by 18 feet. The style is the Gothic of the fourteenth century.

Birmingham.—St. Paul's Church, which has been under repair, has been reopened for Divine service. The interior of the edifice has been improved by the application of some colour in place of the former cold surface of the piers and columns, which have been relieved by contrasting the tints of red and grey granite with Sienna marble, the more ornamental architectural members being picked out in white and gold. It having been found necessary to remove the curtains hanging at the east end of the chancel, it was resolved also to decorate that portion of the building. The ceiling and the wall space behind the cross at the east end have been painted ultramarine, and are to be studded with gold stars. The other wall space of the chancel is to be decorated with panels formed with ornamental borders, together with the altar tablets, the latter being surmounted with symbols of the Trinity and of the Redeemer. The painted window, by Egginton, which represents the conversion of St. Paul and other incidents in the life of that apostle, has been cleansed.

Bradford.—Alterations and restorations are in progress at St. Peter's Church. Amongst other improvements, it has been resolved to remove the plaster ceiling of the nave and expose the old oak roof. A curious tradition exists as to the ceiling and concealing of this roof. At the vestry meeting (probably in 1724) held to consider the propriety of ceiling the roof, says the *Bradford Observer*, "there was some difference of opinion, and matters ran high. As each ratepayer went into the vestry the question put to him was, 'Are you for God or the Devil?' the promoters of a plaster ceiling being supposed to be for God, the opposite for the Devil!" The churchwardens and chapelwardens of the townships in the parish are said to have sent a written remonstrance to the vicar against enforcing the order in vestry.

Doncaster.—The church of St. John, Chapeltown, has been consecrated by the Archbishop of York. The church stands on an eminence overlooking the Blackburn valley, and cost about 1,700*l.* It is in the decorated Gothic style, from designs by Messrs. Worth & Campsall, of Sheffield, and consists of nave, chancel, and south aisle, with tower and spire at the south-west, forming in their basement story a porch, and is capable of containing 420 persons.

STAINED GLASS.

Gloucester Cathedral.—A memorial window has been erected in the south aisle, to the memory of the late Mrs. Evans, of Highgrove. The design is composed of the vine, which runs through the whole of the window, and the panels for the groups are formed by the stems and tendrils. In the tracery are three groups and two Evangelists. Mr. Bell, of Bristol, was the artist.

St. Michael's Church, Coventry.—A stained-glass window, at the east end of the South Chapel, has been erected in memory of the late Archdeacon Spooner. The subjects are from the Old and New Testament;—in the top row, "Moses delivering the Law," "Moses smiting the Rock," "Passage of the Red Sea," and the "Falling of Manna;" below, "The Nativity" and "Baptism" of Our Lord, "The Woman of Samaria," and "The Supper at Emmaus;" in the tracery, the four Evangelists, with foliage. This is the sixth window placed in this church by Messrs. Heaton & Butler, of London.

Knowsley Church.—Two painted glass windows have been placed in the north and south transepts, recently added, by Mr. Paley, of Lancaster, to the church at Knowsley. The one window represents four of Our Lord's miracles, and the other four parables: these are presented by Lord Derby to the church. The artists were Messrs. Lavers & Barraud, of London.

Ecclesfield Church.—The works of restoration at Ecclesfield Church have been brought to a close for the present, by the erection (in the east window) of a memorial in stained glass, to the memory of the late Mr. B. J. Wake, his relict, Mrs. Wake, and their daughter Harriet. The design and execution of the glass were by Mr. Wailes. The subject is the last scene of "The Atonement on Calvary." The improvements effected by the architect, Mr. M. E. Hadfield, in the interior of the church, comprise the restoration of the chancel stalls and screen, the removal of the unsightly organ gallery, and the arrangement of the pulpit and desk. Mr. Arthur Hayball has executed, under the architect's direction, the carving and restoration of the woodwork and roofing of the chancel.

SCHOOL-BUILDING NEWS.

Reading.—The Whitley Schools, which have been erected mainly through efforts in St. Giles's parish, on a spot about mid-way between Reading and Three Mile Cross, are now open. The schools are of flint and stone, with Bath stone dressings, and are in the Gothic style, from a design by Mr. H. Woodyer, of Guildford; and the work has been carried out by Messrs. Wheeler, of Reading. The building comprises a school-room and class-room, and a residence for the schoolmaster and schoolmistress is attached.

Weymouth.—The newly-erected middle-school has been opened. It is situated upon the site of the old water-works, according to the *Dorset*

Chronicle, and built in the Tudor style, with red bricks, pointed with coal-ash mortar, and Bath stone dressings to the windows. The roof is covered with Bangor and Delabole slates. From the roof rises a turret, by means of which the ventilation is effected, and in which a bell is fixed. The entrance-hall is 27 feet by 12 feet. There is a classroom, 30 feet by 23 feet, and 14 feet high, on one side, accommodating forty-five boys; and on the other a smaller room, 23 feet by 16 feet, having a gallery. The principal school is ascended to by a stone staircase with iron hand-rail, and measures 60 feet by 30, and 24 feet in height, giving space for the tuition of nearly 200 boys. There are four starlight gas-pendants, and, to heat the room, a fireplace at each end, with stone chimney-pieces. Mr. G. R. Crickmay, of Weymouth, was the architect, and the plans have been carried out by Mr. E. Seaman.

FURNESS ABBEY.

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the meeting of this Society on the 26th ultimo, when the paper on "The Resources of Design in the Natural Kingdom," printed in our last, was read, a denial was given, from Mr. Ansdell, to the statement made at a previous meeting, that Sir Edwin Landseer and Mr. Ansdell were in the habit of anointing dogs with bears' grease, for the purpose of polishing them to be painted from! Afterwards Mr. W. H. Picton read a paper on "Furness Abbey." With reference to its history, he said it was founded in July, 1127, by Stephen Earl of Morton, by whom it was richly endowed, and dedicated to the Virgin Mary. It was occupied by the Benedictine order of monks in the first instance, and subsequently by the Cistercians, an order which flourished exceedingly in England. The wealth of the Abbey was second only to that of Fountains Abbey, in Yorkshire; and in magnitude the establishment was second, of the order, in the kingdom. Few abbeys could boast of more royal protection than that of Furness. The time, came, however, when the fact was revealed that what one king had raised in a spirit of pious zeal, another could destroy; and so, after having flourished for more than 400 years, the monastery was dissolved. The site and the remains of the abbey were commented upon. Unlike other ruins of the same date it is not in a good state of preservation, and this was attributed by Mr. Picton to the fact that it had been made a quarry of for years, for material for building purposes. The paper concluded thus:—"After all that has been written, and all the researches that have been made, little really is known of these old buildings, and many things must ever remain a mystery. As Sir Thomas Brown says:—'There is no antidote against the opium of time, which temporally considereth all things: our fathers find their graves in our short memories, and sadly tell us how we may be buried in our survivors. Grave-stones tell truth scarce forty years: generations pass while some trees stand; and old families last not three oaks.'"

> "The sacred tapers' lights are gone:
> Grey moss has clad the altar stone:
> The holy image is o'erthrown:
> The bell has ceased to toll.
> The long-ribb'd aisles are burst and shrunk;
> The holy shrines to ruin sunk:
> Departed is the pious monk;
> God's blessing on his soul."

CONCRETE AT THE LONDON DOCKS.

AT a recent meeting of the Royal Scottish Society of Arts, Mr. G. Robertson, C.E., read a paper on the concrete used in the late extension of the London Docks. The paper was a sequel to one read by the author before the Institution of Civil Engineers in April, 1858, on the theory and practice of the hydraulic mortar used on the same works, and gave an elaborate description of the manufacture and the application of the concrete. A general boring of the ground in which the Shadwell New Dock was built showed that a bed of gravel, of an average thickness of twelve feet, extended over the whole area of the works, which furnished the requisite ballast, and made concrete the most economical material which could be used. Almost all the concrete was made with blue lias lime, brought sun-burnt from Lyme Regis, and burnt on the works in two egg-shaped kilns, holding each about 100 tons of stone. The concrete was applied in the works in four forms, always, however, in the monolithic state. 1st, in foundation, as a means of spreading weight over a large surface; 2nd, as the cheapest method of reaching a good foundation in the good London clay, which was at a level of thirty feet below Trinity high-water mark; 3rd, in the dock walls themselves, wherever the concrete would not be exposed to the alternate action of wind and water; 4th, in counterports and buttresses, where weight was wanted, but on which nothing was afterwards to be built. The paper showed that the total cost of making a cubic yard of concrete came to 5s. 8d., at the rate of 10d. per bushel of lime, the price arranged in the contract with Messrs. W. Cubitt & Co.

LEEDS MECHANICS' INSTITUTION AND SCHOOL OF ART COMPETITION.

WE have received a letter from the author of the design, "Red Cross in a Circle," but can find space for only a portion of it. The writer says:—

"In your report on the exhibition of the designs for the Leeds Mechanics' Institution and School of Art, the favourable mention you give of the design with the monogram, 'Red Cross in a Circle,' of which I am the author, has induced me to protest against the underhand manner in which the committee, or the secretary with or without their sanction, has acted throughout the whole proceedings, but especially at the conclusion of this competition.

Mention was made in the conditions that the committee proposed calling in some professional gentleman to assist them in the selection. The Leeds papers have more than once asserted that Mr. Scott was to be so called in; but this, I suppose, was found to be impracticable, or his opinion has been adverse, else we should have heard of it from these papers.

If Mr. Scott has approved of the selected design after having seen the conditions, I, for one, shall be perfectly contented, and shall no longer feel myself an injured competitor. You have, in your report, clearly proved by facts, that the selected design does in more than one point fail to meet the requirements. On the other hand you have asserted that two designs, "Fortiter et Fideliter" and my own, very definitely meet the requirements of the conditions, and you so far honour these designs as to assert that the difference of style is, in your opinion, the only test of their respective adaptability for the purpose and of their merits as designs.

With implicit faith in your superior capability of judging, and on the strength of your decision, I beg to be allowed to call the attention of the committee, and the notice of certain gentlemen in Leeds, who have subscribed largely to the new institution, and whose positions place them beyond all suspicion of unfair dealing, to the present position of the affair. * * * * * *

W. H. CROSSLAND.

WOMAN'S AID FOR LONDON HOMES.

> "Sore pierced by wintry winds,
> How many shrink into the sordid hut
> Of cheerless poverty."—*Thompson's Winter.*

SIR,—I have always been an admirer and venerator of research; and much as I deplore the waste of invaluable human life in the Arctic regions, in the hope of recovering our lamented navigators of the Franklin expedition, deep is my cherished remembrance of the self-devotion of Bellot and Kane. Not less worthy, however, of respect and recognition are those who devote their energies to the solution of a far more important problem, in a national point of view, than even the bringing back to their homes gladdening tidings of the long-lost brave. Were it possible to accomplish this victory of humanity, how rejoicingly would all England combine to pay the price; but we dare not hope that any expenditure of money, science, or energy would now be availing. There is, however, a triumph of justice and benevolence yet to be achieved which this country *may* accomplish, and of which the editor of the *Builder* must be considered the pioneer. It is the rescue of multitudes of our fellow-citizens—men, women, and children—from darker than Arctic regions,—those of ignorance, filth, and demoralization, from companionship more debasing than that of Esquimaux savages, in the miserable haunts of destitution described in the number of your journal for the 29th of December last. All honour to the brave spirits who descended into these, to reveal the social degradation of the unhappy denizens of such localities! All shame to us of the upper regions of society if the revelation be made in vain! The work is not practicable by a few: it must be made the work of all. Taking good counsel for our guide, we would ask, what would be the expense of improving the courts, alleys, and other rookeries described in the *Builder* of last Saturday?—and again, what the probable expense of providing better *permanent* homes for the families now so wretchedly housed?

I would respectfully suggest that a calculation of this kind should be made, and presented to the readers of the *Builder*; and I would further suggest that the wives and other female connections of the building profession should form themselves into the *nucleus* of a society for carrying out this plan, in which they would have the best opportunity of obtaining assistance and advice in accomplishing their object, and giving employment to numerous labourers.

For myself, I shall be happy to aid in giving my mite, though no way connected with the architectural classes; and I would also offer my humble services as secretary and collector for the district in which I reside, if supplied with the needful credentials. It would be an essential preliminary, I should think, to print the statement you have made, for distribution, as a justifiable appeal on behalf of the sufferers, and to found on it a request for the sum necessary.

Such a benefaction would not, I think, be refused, when the importance to the health and decency of the *whole* metropolis is considered.

S. E. MILES.

THE STAGE AND AMUSEMENTS.

EVERY theatre in London (and there are nineteen open at this moment, without counting "entertainments" and music halls), presents a Christmas piece, the most a pantomime, wherein scenery and mechanism play an important part. The increase in the number of scenic artists of late years is very remarkable. At *Drury Lane* a novelty is introduced in the transformation scene, by Mr. Beverley, the most inventive of the brotherhood. The scene shows the approach of "the flying women of the loadstone island;" and, by means of two large wheels to which the flying women are loosely attached at the shoulders, the effect is produced of an arrival never ending, still beginning. The polychromatic changes on the wings are also very striking and beautiful.——The pantomime at the English Opera-house, Covent-garden,—"Blue Beard, or Harlequin and Freedom in her Island Home,"—is produced with great elegance and completeness. Messrs. Grieve & Telbin have done the scenery, and have done it well. "Britannia's Marine Retreat," with its iron roof, "Street near Mustiphustima's house," and a "Scene of Desolation," ending in no small change, the "Fairy Fountain," may be pointed to. The pantomimists are excellent. Mr. Harrison's operetta, "The Marriage of Georgette," increases in attractiveness.——Mr. Buckstone, at the *Haymarket*, has achieved a considerable success, under the title of "Queen Ladybird and her Children, or Harlequin and a house on Fire." Out of the simple nursery rhyme he gets quite sufficient story, and some charming scenery is aided by novel effects of fire and water,—too much water, indeed, for the comfort of the dancers. "An April day in the Country," and "The Honeysuckle Bower," are both charming scenes; but, in the closing scene of the fairy story, the rising of the Ladybird's new house, with its glassy retreats, mother-of-pearl doors, silver fountains, and running streams of water, Mr. Frederick Fenton has produced the best thing he ever did. The harlequinade ends with a sparkling view of the capitol at Washington, and a warm compliment to our brethren of the stars and stripes.——For the *Princess's Theatre*, "Robinson Crusoe" has been seized on to introduce a pantomime, and we have a wonderful Man Friday (M. Espinosa), alarming savages, pretty paintings by Mr. Telbin, and dances not merely original, but aboriginal. The "Translation" scene, "the Golden Grotto of Christmas Berries," though quiet as compared with what is sometimes done in our days at this epoch of the piece, is artistic and beautiful. Mr. Fechter, an actor of great merit, is shortly to reappear.——Mr. Alfred Wigan, eschewing clown and pantaloon, has mounted, at the *St. James's Theatre* a classical extravaganza, hight "Endymion, or the Naughty Boy who cried for the Moon," which agreeably relieves the seriousness of the first piece, "The Isle of St. Tropez." Mr. F. Lloyds has painted the Landscapes to coincide with the author's Views, and Miss M. Taylor, Miss Herbert, Miss St. Casse, Mr. Belmore, Mr. Chas. Young, and Mr. Emery make them resonant with mirth. The ascent of Endymion with Diana is an effective, beautiful climax. The practised hand of Mrs. Wigan is seen in the getting up of the piece. We spoke of mirth just now. There is none of this in the drama "The Isle of St. Tropez," but there are in lieu a striking story, a telling situation, and some most admirable acting by Mr. Wigan, acting which should be seen by all admirers of the art. Mr. Dewar is a promising actor, new to us.

Mr. and Mrs. Charles Kean.—With a warm recollection of the services rendered by Mr. Charles Kean to the stage, as well in those departments which concern an art-paper most as otherwise, we are glad of an opportunity to record the great success of his tour in Ireland, in company with Mrs. Kean. In Dublin and Cork they have been received with genuine and well-deserved plaudits. On Monday last our informant saw them act in *Hamlet*, in Belfast, with their accustomed great excellence.

The Polytechnic Institution offers some sound attractions, including brilliant electrical experiments, the illuminated fountain, some good views

of noted parts of Sicily, and a large sectional model of the earth's crust, designed and executed by Mr. John S. Phené, managing director of the Institution. This model is 100 feet in length, with scenery extending from the Arctic regions to the Equator, corresponding with the stratified section beneath. Working mines and sections of the ocean are introduced. The mountains and other elevated portions of the earth, as well as the animals of the respective countries, are brought out in bold relief from the surface of the paintings.

Gallery of Illustration.—Here Mr. and Mrs. German Reed and Mr. John Parry are repeating their very elegant, and, what is even more to the purpose, interesting and amusing entertainment. Mrs. Reed is singing admirably.

WHAT IS A GRIFFIN?

THE Architectural Publication Society gives us one plate, out of six only, in their number of the "Dictionary of Architecture," just issued, filled with sketches of griffins; but, as they have not arrived at the letter G with their text, we are yet left without information as to their nature and use, or the object of illustrating them.

I venture, therefore, to forestall their coming article by an endeavour to realize, from the examples given, some idea of the subject, for those who may be curious about it, humbly owning that my view may be open to correction; which, doubtless, will be made when the scientific treatise we anticipate is forthcoming.

A griffin, then, is an animal "composed," as capitals, are said to be by classic reviewers, when Ionic volutes are struck over Corinthian leaves, like the headgear of an old-clothesman. It is mainly a lion, typifying how brute force can be subjected to man's art. This has been so thoroughly done, that all the limbs and joints of the creature have become swollen as if with rheumatism, the muscles disarranged and puffed up, till all truth of anatomy, as well as sense of power, is gone; and one feels that the poor beast could scarcely move from the position in which its posture-master last placed it. All its moral teeth and nails have been drawn, so its real ones can be harmlessly paraded, yet some cat-like vice would seem to be left, as the example No. 1 (from the frieze of the Temple of Apollo Didymeus, Branchidæ) is stealthily creeping along, in order to clutch some poor mouse or other, which, fortunately, it looks as if there were little chance of its catching. The specimen No. 2 (from a marble bas-relief, at Rome) has been so completely cowed as to have cheerfully undertaken the office of a flunkey, and has comfortably tucked away its inconvenient tail, together with its dignity, and quietly settled down to act as a torch-bearer, lolling out its tongue with an air of self-satisfied imbecility. Happily for No. 3 (from statue of Caligula, Villa Borghese, Rome), its nature seems to be but slightly sensible of pain, for the tyrant to whom it belonged evidently condemned it to walk upon hot wires, and its fore-paw has been already shrivelled to half the size of the rest; all which it takes but little amiss, and has not even uncurled its tail from the *very Roman* line of beauty into which it had been bent. The creature is, however, subject to infirmities; for No. 4 shows a specimen of one taken before, and No. 5, of one taken after the application of some infallible barber's restorative. No. 6, also portrays another afflicted with *mal d'estomac;* and No. 7 is a view of a similar patient, licking up from a platter some necessary but nasty compound. Nos. 8 and 9 show the perfectly-trained classic grotesque animal, having lost every trace of its native vigour, and rendered altogether ornamental and helplessly effete and idiotic, ready to stand upon three legs at command, garnished with wings, crumpled as if taken out of a band-box for the occasion; a matter of slight importance, seeing that they never were intended and would be useless for flying with.

Such, then, is a griffin,—a tame, classic monster, freed from all laws of consistency, anatomy, or common sense, and bereft of energy, nerve, and character,—a fit emblem of the ornamental art of the period. Whether these examples have been here given by the Architectural Publication Society for our warning, or for our admiration, we have yet to learn. Let us assume the former, and that they are about to give us a plate of good grotesques to which these are to form a contrast, and of which scores may be found in the rudest Romanesque or Gothic buildings, executed when men felt and believed in, rather than "composed," their art.

JOHN P. SEDDON.

A MODE OF ADULTERATING LINSEED OIL.

HAVING by accident discovered the method now in use for adulterating linseed oil, &c., I beg to forward the following statement, to enable you to expose the rascality of the prevailing system in the pages of your widely-read journal. The manufacturing process of the adulterating medium is extremely simple. Diseased or damaged cocoa-nuts are broken and boiled for a considerable period, then allowed to cool, when a thick coating of light frothy (yet colourless) fatty matter forms on the surface of the water; and this, being skimmed off, is applied in its solid state for various purposes; but if again melted it *remains* liquid. This fact being established, the fraudulent seller was at once in a position to reduce oils inexpensively, and the general complaints of all interested prove the extent of deterioration. Marine-store dealers, railway grease and candle makers, have been victimized to a great extent; but they, finding the fat in question contained from 15 to 20 per cent. of water, and had no body, have for some months refused to purchase even at the price of greaves, or less than one-half the average market value of "melted stuff." Looking to the real quality of the "best linseed oil," now supplied, the price should be 9½d. per gallon (not 3s. 3d.), as proved by several samples procured of old-established and apparently respectable firms, all of which afford conclusive evidence of their being adulterated with the molten fat described to an extent hitherto unheard of or even thought of. It is impossible to conduct a fraudulent business of any character unknown to the principals; and, as the manufacturer and merchant in this case must indisputably share the profits of their roguery between them, without consideration as to the disgrace and loss sustained by their customers, I beg to recommend the immediate application of the only remedy open (in my opinion) to those interested, viz., analysis and public exposure.

GEO. BIGGS.

THE BLIND.

THE annual meeting of the Society for Improving the Social Position of the Blind, Milton House, Walworth-road, was held recently, at the Horns, Kennington. The chair was taken by Mr. Frederick Doulton, and afterwards by Mr. William Roupell, M.P. A large and influential assembly was addressed by the following speakers:—Rev. W. Barker, W. H. Bonner, J. McConnell Hussey, J. Kirkman, F. Perry, F. F. Statham, W. P. Tiddy, and others.

The report read showed that the object of the formation of this excellent Institution was to act as a general religious and secular missionary undertaking for the blind, irrespective of age, sex, creed, condition, or locality, as such is evidently greatly needed. It organizes systems of regular visitation to the homes of the blind, and provides education, trade employment, and rational amusement for this suffering class; it also supplies hired guides, to enable the blind to attend places of worship, classes, lectures, &c. These are but a few of the numerous and, in many respects, novel features of this Society; and these advantages have been extended more or less to upwards of ninety persons during the first eighteen months of its operations.

Tokens of sympathy and respect were manifested by the various speakers towards Mr. Alexander Mitchell, the hon. secretary, himself blind; and the perusal of an essay, entitled, "The Blind,—their Capabilities, Condition, and Claims," written by the same gentleman, and published on the present occasion, was strongly recommended. A bazaar and concert by the blind took place in the early part of the evening.

BUILDERS' ACTIONS.

CONTRACT OR NO CONTRACT.—*Marks* v. *Bonner.*—This was an action in the Brighton County Court, to recover 50*l.* for work done by plaintiff, a carpenter and builder, for the defendant, a jeweller, who paid 11*l.* 6s. 8d. into Court. The claim was for erecting a glass house at the top of defendant's premises, and the real point to decide was whether the contract for the work had been so far broken by alterations, made in obedience to defendant's orders, as to entitle the plaintiff to charge the whole by "measure and value." It appeared that estimates were given each time for the proposed alterations, and that plaintiff proceeded with the work without intimating that he should charge by measurement. The judge, feeling satisfied that the amount paid into Court was sufficient to cover the balance due upon the estimates given, gave a verdict for defendant.

EMPLOYERS AND EMPLOYED.

TRIGG *v.* CULLIFORD.—This was a summons charging the defendant with having endeavoured by threats to force James Warner to depart from his hiring. The complainant deposed that he was a builder, residing in London, and was engaged in superintending the erection of certain works for Mr. Sandham, on Hayling Island, Havant. He engaged James Warner to fetch bricks for him from Fareham and other places, and the terms agreed upon were 3s. 9d. per ton. Warner, having failed to fetch the bricks, gave as an excuse that he should have done so, but Mr. Culliford, (the alleged proprietor or joint proprietor of the barge), insisted upon his not going for the bricks. Warner himself deposed much to the same effect.

The Chairman observed that he thought Warner was the party liable. Complainant appeared to have sued the wrong man.

Mr. Culliford said that he was sending a great number of bricks to the dockyard at Portsmouth. The barge belonged to John Warner, and he (Mr. Culliford) had employed the barge for carrying his bricks to Portsmouth for the past seventeen months.

The Chairman said that Warner ought to have told Mr. Trigg that he could not use the barge without first asking Mr. Culliford. It seemed that Warner made an agreement with the complainant, which agreement he did not fulfil, and therefore complainant could take out a summons against him. Warner had no business to have made a contract to fetch the bricks in that particular barge without having obtained Mr. Culliford's sanction. According to Warner's own statement, he was liable to be summoned to the County Court for the whole amount of loss sustained by the complainant through his breach of contract.

Mr. Trigg first thought of summoning Warner before the magistrates, but on consideration he said he had determined to take the matter into the County Court.

Books Received.

Buildings for Mechanics' Institutions. London: Published for the Yorkshire Union of Mechanics' Institutes, by Longman, Green, & Co.

THIS pamphlet contains designs (elevations and plans) for institutes in small towns and villages, with a copy of the Act for exempting institutions from local rates, and will be found useful by architects and others. The object of the publication is to promote the erection of buildings for institutes in small places where the difficulty encountered in obtaining convenient plans is considerable. It includes a design by Mr. Isaiah Dixon, for a limited site; the Long Preston Mechanics' Institution, architect, Mr. John Beecroft; a design from Mr. Cuthbert Brodrick, intended for a small town; the Middleborough Mechanics' Institution, Mr. John Dunning, architect; and the Holbeck Institution (a good plan), Mr. E. Milnes, architect. The last has a lecture-room to contain 800 persons, and cost 1,830*l.*, exclusive of the land, which was given.

Miscellanea.

THE BATH SURVEYORSHIP.—After some further discussion at the adjourned meeting to which the matter was postponed, the surveyor gave in his resignation to the City Act committee.

PROGRESS OF THE HARTLEY INSTITUTION AT SOUTHAMPTON.—The chief stone of this edifice is to be laid by Lord Palmerston on the 8th instant. It appears that the front block or main building, which was first carried up and remains prepared for the ceremony, is 73 feet long in frontage, and 45 feet wide, and is brought up to the ground-line.

FALL OF IRON ROOF, HAVRE.—At the Entrepôt Dock at Havre, the large inner court is covered in with a glass roof, supported on iron rafters. The iron, having contracted with the frost, became loosened, and the weight of snow which had fallen on it a few nights ago caused it to give way, and the whole came to the ground with a tremendous crash.

PARTIAL DESTRUCTION OF THE PIER AT RYDE. A south-east gale has driven three collier vessels through the pier at Ryde, the largest space left being 150 yards, and the further part of the structure being left like a wooden island. The damage is from 1,000*l.* to 1,500*l.* Temporary bridges are being made. The new pier is safe.

THE ALPINE TUNNEL.—Within the last few weeks, the works of the tunnel through Mont Cenis have been suspended,—some say, owing to want of funds, while others assert that unexpected difficulties of execution have appeared. This latter seems to be the more probable supposition; for the Sardinian Government regard the opening of this tunnel as an event of great international importance, and are not likely to allow the works to languish from want of funds, although doubtless they have a good deal to do at present with their money.

POST-OFFICE LIBRARY.—We have already mentioned the establishment of a library and literary association in connection with the Post-office, and are glad to hear of its successful working. To provide funds for the furniture and fittings of a larger reading-room, the committee, with the sanction of the Postmaster-General, have made arrangements for the delivery of a course of lectures to the members of the association and their friends. Entrance to these lectures will be by tickets, the money paid for which will be applied to the purchase of the furniture. Mr. Anthony Trollope, Mr. Hughes (author of "Tom Brown's School-days," &c.), Mr. G. H. Lewes (author of the "Biographical History of Philosophy," "Seaside Studies," &c.), Mr. George Grossmith, Mr. T. A. Trollope (author of the "Girlhood of Catherine de Medici," "A Decade of Italian Women," &c.), Mr. Thomas Hood, Mr. Edmund Yates, Mr. West, and Mr. Scudamore, have consented to take part in the course. The first lecture, "On the Civil Service as a Profession," will be delivered on the 4th inst., by Mr. Anthony Trollope; the second on the 18th inst., "On Good Authors at a Discount," by Mr. Edmund Yates.

COLLIERY EXPLOSIONS. — Reading in the *Builder* about the recent fearful colliery explosions, I think it right to mention that a person of the name of "Debrulle" in this town (Lille) has improved upon the "Davy Lamp," so that a man, if he attempt to open it, extinguishes the light. The lamp has been in use some year or so in Belgium, at Mons, and other places, and no explosions have been known to take place since.—

M. G.

THE ART-UNION OF THE LIVERPOOL ACADEMY. The drawing took place, as announced, on Saturday last. The amount subscribed was about 800*l.*

IMPREGNABLE NAVAL ARCHITECTURE. — Mr. Whitworth says he could build a ship impregnable against any guns—a structure perfectly indestructible by firearms; and that the ship could be taken within six miles of a fort, and thence pour into it molten iron at discretion.

PUBLIC WORKS IN INDIA.—The Government of India have published an important despatch, enumerating no fewer than 106 public works postponed or retarded for want of funds. An expenditure of more than eight millions is required for these projects, but the means are not forthcoming at present. The Government are desirous of applying to them, out of the 1 per cent. on incomes above 50*l.* a year, a quarter of a million this year, and half a million next year.

NATIONAL PORTRAIT GALLERY.—Several new pictures have just been added to this incipient national collection in Great George-street, Westminster, including a portrait of Sir Christopher Wren, one of Kneller's best works, which bears date 1711, and is well known by the engraving published in Allan Cunningham's "Lives of English Painters, Sculptors, and Architects." The colour of the walls of the room has been changed to a deep red. The gallery continues freely open to the public on Wednesdays and Fridays, between the hours of twelve and four: on other days it is strictly closed.

THE TEMPLE FOUNTAIN.—Sir: the only purely Italian design of a fountain to be seen in England, which is not offensive in taste, is that of white marble in the Temple Gardens, which, instead of being made the most of, as it well deserves to be, and having proper accessories, is covered up in great monster trees, and overflows its marble border, instead of having an open space around it, with four vases or statues on the paths which should lead from it. I feel sure, did the benchers think of it, something would be done to open out one of those of which we have so very few, and even they so impure in taste.—SOMERSET.

MAIN DRAINAGE.—The deputation named by the late meeting at Hanover-square has waited on the Home Secretary to urge upon him the need of some strong and large measure being brought in by Ministers to enable majorities in flooded districts to obtain an outfall for their waters in spite of obstinate individual landowners, local Acts "for navigation," &c. We understand that Sir G. C. Lewis expressed his willingness either to introduce or facilitate the passage of a bill founded on Lord Carlisle's Act of several years ago, from which, however, it is to differ in certain important respects, pointed out as its defects by the gentlemen of the deputation.

SHIPS IN ARMOUR: LAUNCH OF THE "WARRIOR." A new era, in naval architecture, appears to be in progress; and, for the next few years, we suppose, a sort of rivalry in speed of manufacture will take place between France and England, as to ships in armour. Surely, however, it is a clumsy principle to keep such ships in perpetual armour, like the man with the iron mask: could not ships be so constructed as to have their plate-armour bolted and dovetailed on their sides when they go to war, or into imminent risk of action, but taken off and laid aside, or not put on at all, under more peaceful auspices? So was it with hosts in armour, and so might it be with ships in armour. The *Warrior*, just launched in the Thames, though constructed for ponderous armour, was not cased in it when launched, and still remains, like the old warrior while at home, "stripped to the buff." Each armour-plate of the new ship is formed of scrap-iron, carefully welded into a slab, about 16 feet long by 4 feet broad, and 4½ inches thick, and weighing about 12 tons. All the plates are dovetailed at the edges to fit into one another; and they are to be bolted through teak and iron into the inner ribs of the ship. The teak is an inner coat of armour, 20 inches thick, of this very dense and tough wood. The total weight of the plates on both sides is 1,000 tons. The "nose" or beak of the ship is one immense slab of iron, 30 feet long, by no less than 10 inches thick, and weighs nearly 20 tons. A few of the armour-plates were in their places when the launch took place. The total weight of the ship, when fully equipped with the armour, will be 9,000 tons, or about the weight of the *Great Eastern's* hull when launched. The tonnage of the *Warrior* is 6,177. The engines are of 1,250 horse power, but there will be room for only six days' coal, or 950 tons. The sub-structure of the vessel is of course very strongly framed, with iron beams and girders strengthening the timber work. She will have powerful Armstrong guns.

THAMES TUNNEL.—During the Christmas week 35,081 passengers visited the Tunnel, and paid 146*l.* 3s. 5d.

A PEAL OF BELLS FOR PELSALL.—The new tower of Pelsall Church has been supplied with a peal of five bells, made by Messrs. Warner & Sons. The tenor weighs between 7 and 8 cwt., and the whole peal, according to *The Staffordshire Advertiser*, is remarkable for perfection of casting and for tone. The erection of the tower cost 500*l.*, and the bells 274*l.*

NEW FREE SCHOOL FOR CLAYTON WEST.—The *Huddersfield Chronicle* states that Messrs. William Kaye & Son, manufacturers, Clayton West, in conjunction with Mr. William Kaye, jun., of Melbourne, Australia, have just commenced the erection of a new free school and house for schoolmistress, at Clayton West, which they propose to endow and give to the residents of the township. The entire cost will not be less than 3,000*l.*

IMPROVEMENT OF ROADS IN THE SICILIAN DOMINIONS.—The Director of Public Works at Naples has addressed a circular to the governors of Sicilian provinces, requesting them to send him all the information in their power respecting the roads in the country and those places which are more or less in want of new ones, in order to enable him to form such a general network of roads as will best contribute to the revival of trade and the prosperity of the people.

PILLAGING "THE BUILDER."—A copy of the *New York Builder* was sent to us a few days ago, which contained five complete articles transferred from our pages without the slightest acknowledgment in any one instance. Another American art-paper usually takes two or three, acknowledging one, and appropriating the others without acknowledgment. At home we are similarly treated in a few quarters only. The *London Journal*, for example, systematically transfers whole articles without the slightest acknowledgment: and we could mention others. We are glad to find our matter, often costly though it be, widely reprinted with acknowledgment; but we protest most strongly against such appropriation as that to which we have alluded.

UTILIZING WASTE STEAM.—An invention, the object of which is to utilize the waste steam of steam-engines in such a manner as to economize fuel to a great extent, has been provisionally specified by Mr. F. Datichy, of Paris. He conducts the waste steam from the engine through a pipe that leads to a receiver, enclosed in a water-jacket or casing. On the top of this receiver is a constant shower of cold water, which causes a slight condensation of the steam, which is then withdrawn by means of a pump attached to the engine, which forces it into vertical tubes on each side of the furnace, where it is subjected to the heat of a surrounding cylinder. The effect of this is, that it is forced again into the boiler for further use.

THE HASTINGS COTTAGE IMPROVEMENT SOCIETY.—The seventh half-yearly report of the Hastings Cottage Improvement Society, for the six months ending October 10, 1860, has been issued. From this report it appears that the society has continued to increase and to prosper during the past six months. The number of the society's houses now amounts to about 108, and the number of tenants to about 122. The most important acquisition made by the society during the last half-year has been two houses in East-hill Passage. The possession of these will enable the committee greatly to improve that neighbourhood. During the past half-year the society's total income has increased from 504*l.* 0s. 3d. to 651*l.* 18s. 10d.; and the net income from 285*l.* 10s. 8d. to 389*l.* 5s. 11d.: the gross rents have increased from 404*l.* 11s. 3d. to 524*l.* 18s. 4d.; and the net rents from 281*l.* 14s. 8d. to 376*l.* 14s. 7d. The average amount of the gross rents received during the past six half-years has been at the annual rate of 11·38 per cent. on the total outlay; and the net rents have been at the rate of 8·65 per cent.; the outgoings for rates, taxes, insurance, repairs, &c., having been at the rate of 2·73 per cent. All the property has been lately put into thorough repair by the expenditure of capital. During the last six half-years the society's average total income from all sources has been at the annual rate of 12·85 per cent. on the paid-up capital, and the net income has been at the rate of 7·66 per cent.; out of which sum the shareholders have received a dividend of 6*l.* per share, free of income-tax (which is paid on the gross rental by the society); and the remainder has been added to the reserve fund. The total cost of the twelve separate properties possessed by the society has been about 10,400*l.*

"THE LIFE-BOAT JOURNAL."—The quarterly number of this *Journal* has been issued from the Royal National Life-Boat Institution Office, 14, John-street, Adelphi. The price is only 2d.; and, besides several articles, on the Education of Seamen and Marine Schools, the value of Barometrical Indication, the loss of the *Arctic*, services for Life-boats, and other official information, it is illustrated by an engraving from a picture of the Life-boat, by a Liverpool artist, Mr. S. Walters. From this periodical, it appears, that 200 persons were saved by the life-boats of the Institution during the past year, and they also went off forty times in reply to signals of distress, and assembled on other occasions in stormy weather both during the day and night. For these services, the total amount paid was 792*l.* On occasions of service and quarterly exercise during the year, the life-boats were manned by upwards of 5,000 persons. All the life-boat services took place in stormy weather, and frequently in the dark hour of the night. The Institution has 108 life-boats under its charge. Much has been done, but much, as the *Journal* truly remarks, yet remains to be done; and it is from the contributions of the many, and the endowments of the humane, that such an establishment must derive its vitality and future power to keep up its large life-saving fleet. The National Life-Boat Institution has, doubtless, only to be more generally known to be placed upon a more permanent and extended footing.

TENDERS

For the erection of two detached villas at Great Malvern, for Mr. J. B. Heming, of Worcester; Mr. E. W. Elmslie, architect:—

Thompson	£3,600 0 0
Smith	2,690 0 0
McCann & Everal	2,690 0 0
Smart	2,480 0 0
Edwards	2,360 0 0
Holt	2,195 0 0

For alterations at the Crown and Horse-shoe public-house, Holborn-hill:—

Stevens	£395 0 0
Wells	343 0 0
Wagstaff & Son	339 0 0
Marr	295 0 0
Fox	240 0 0

For painters' work to be done at Messrs. Kerr & Scott's premises, Cannon-street, City; Mr. Henry Jarvis, architect. Quantities supplied:—

Knight	£496 0 0
Lawrence	372 0 0
Henshaw	365 0 0
Fisher	364 0 0
Maclachlan	224 0 0

For building four houses at Gipsy-hill, Norwood, for Mr. White; Mr. Mills, architect. Quantities supplied:—

Carter	£2,894 0 0
Penny	2,859 0 0
Garman	2,758 0 0
Seymour	2,755 0 0
Downs	2,737 0 0
Fisher	2,695 0 0
Adamson & Sons (accepted)	2,689 0 0

For the formation of the roads and sewers on the Gordon estate, Stoke Newington; Mr. J. H. Rowley, architect:—

	With gravel on the estate.	To purchase gravel.
Garner	£680 0 0	£765 0 0
Ley	507 6 11	
Elliss	495 10 0	645 10 0
Freedody	437 0 0	485 0 0
Pound	373 0 0	433 0 0
Sharon	360 0 0	400 0 0
Mann	359 0 0	499 0 0
Stacey	336 0 0	360 0 0
Bilton & Clarke	328 14 0	476 18 0
Potter	290 0 0	
Hartland and Bloomfield	273 7 0	390 7 0
Howlett	260 0 0	325 0 0
Hawkes	258 0 0	
Symes	230 0 0	307 0 0

For a villa at Dulwich, for Mr. F. Doulton; Messrs. Banks & Barry, architects. Quantities supplied by Messrs. Shedwick:—

		Bath stone extra.
Wood & Son	£3,298 0 0	£330 0 0
McCloud	3,220 0 0	285 0 0
Ennor	3,210 0 0	225 0 0
Downs (accepted)	3,066 0 0	286 0 0

For the construction of the works and mains of the Southborough Gas Company. The plans and specification were prepared by Mr. Alfred Penny, engineer, Wenlock Iron Works, London:—

	Buildings and Works.	Main Pipes.	Total.
	£	£ s. d.	£ s. d.
Cutler	1,370	532 3 6	1,902 3 6
Murphy	..	..	1,760 0 0
Perigal	1,329		
Seager & Gardner	1,321		
Laidlaw (accepted)	1,160	484 2 0	1,644 2 0

Ealing Cemetery.—The "Schedule of Prices" sent in by Messrs. Adamson & Sons, of Turnham-green, for draining and enclosing the Ealing Cemetery has been accepted by the Burial Board.